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SHORT COMMUNICATION

Congenitally Missing Teeth – A Developmental Anomaly

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ABSTRACT

Teeth plays a major role in esthetics and functioning of the oral cavity. Missing teeth can cause disharmony in functioning and esthetic value of an individual. Third molars are the most common teeth which goes missing without even formation of tooth bud. Here we report a case of congenitally missing maxillary lateral incisor with no known cause for the same.

Keywords: Congenital, Maxillary Lateral Incisors, Esthetics, Developmental Anomaly, Dental Agenesis

1. INTRODUCTION

Maxillary lateral incisor agenesis is a condition that affects both dental esthetics and function in young patients, and represents an important challenge for clinicians.¹ The tooth is a specialized part of the human body, understanding the development of which is enigmatic and

still challenging. The successful development of tooth depends on a complex reciprocal interaction between the dental epithelium and underlying ectomesenchyme. The interaction involves a complex series of molecular signals, receptors and transcription control systems, failure in this process can result in missing teeth.² More than 300 genes have been known to be expressed in teeth that are responsible for odontogenesis.³ Genetics plays a crucial role in congenital dental agenesis, as confirmed by studies on monozygotic twins.⁴ Here we report a case with congenitally missing maxillary lateral incisors.

2. CASE REPORT



Figure 1. Retained maxillary left deciduous incisor and missing left and right maxillary lateral incisors.



Figure 2. IOPA taken revealing missing left lateral incisor and presence of retained deciduous lateral incisor.

A 21 year old male reported to our clinic with a chief complaint of loose teeth in upper front tooth region since 2 years. He gave no history of pain. Past medical and dental history was non- contributory. Extra orally no abnormalities was detected. Intraoral examination revealed missing maxillary right and left lateral incisor (Figure 1).

Grade 1 mobile deciduous maxillary left lateral incisor was seen, which must have not exfoliated. A provisional diagnosis of retained deciduous left lateral incisor was given, along with congenitally missing maxillary left and right lateral incisors was also considered. Intraoral periapical radiograph was taken in relation to maxillary left deciduous incisor was taken (Figure 2), which confirmed the diagnosis of congenitally missing maxillary left lateral incisor. Treatment plan was decided according to the need, extraction of retained maxillary deciduous incisor was carried out, and patient was referred for Orthopantomogram and was advised orthodontic evaluation and esthetic correction.

3. DISCUSSION

Congenitally missing teeth is a result of disturbances during the early stages of development and is suggested as a mild dysplastic expression of the ectoderm.⁵ The prevalence may be increasing, perhaps due to evolutionary changes or because of increases in the diagnosis.⁶

Etiology of congenitally missing teeth includes, trauma, infection, drugs and genetic factors, as stated earlier genes play a major role in dental aplasia.⁴ The most supported etiological theory suggests a polygenic mode of inheritance, with epistatic genes and environmental factors exerting some influence on the phenotypic expression of the genes involved which this can disturb the tooth germ during the initial stages of formation, i.e., the initiation and proliferation.^{7,8}

Most authors observed predominance of bilateral missing teeth to extents such as about as twice as unilateral missing or even as trice as unilateral missing.^{9,10} Gender might act as a dental agenesis risk factor Women are usually more affected and the male-to-female ratio is about 2:3. Some authors studied the teeth individually and found significant gender dimorphism only for certain teeth such as the upper incisors and upper first premolars, all on the right side only. Of these teeth, only the missing of the upper right central incisor was more prevalent in males and the other ones were more prevalent in females.¹¹

The most common congenitally missing permanent teeth with the exception to maxillary and mandibular third molars, are the mandibular second premolars, followed by the maxillary lateral incisors, and the maxillary second premolars.¹² Correction of esthetics is of prime importance either by orthodontic or prosthodontic treatment. In the above reported case orthodontic correction was advised.

4. CONCLUSION

Treatment of any developmental anomaly is a challenging task, yet with lot of advancement today it's been little simpler with the help of health education and newer treatment aids. It's always better to consider multidisciplinary approach to attain desired result.

References

- [1] Pini NI, Marchi LM, Pascotto RC. Congenitally missing maxillary lateral incisors: update on the functional and esthetic parameters of patients treated with implants or space closure and teeth recontouring. *Open Dent J.* 2015; 8: 289-294
- [2] Thesleff I. Epithelial–mesenchymal signalling regulating tooth morphogenesis. *J Cell Sci.* 2003; 116: 1647-1648
- [3] Thesleff I, Keranen S, Jernvall J. Enamel knots as signaling centers linking tooth morphogenesis and odontoblast differentiation. *Adv Dent Res.* 2001; 15: 14-18
- [4] Militi D, Militi A, Cutrupi MC, Portelli M, Rigoli L, Matarese G, et al. Genetic basis of non syndromic hypodontia: A DNA investigation performed on three couples of monozygotic twins about PAX9 mutation. *Eur J Paediatr Dent.* 2011; 12: 21-24
- [5] Fekonja A. Hypodontia in orthodontically treated children. *Eur J Orthod.* 2005; 27: 457-460
- [6] Mattheeuws N, Dermaut L, Martens G. Has hypodontia increased in Caucasians during the 20th century? A meta-analysis. *Eur J Orthod.* 2004; 26: 99-103
- [7] Thesleff I. The genetic basis of tooth development and dental defects. *Am J Med Genet A.* 2006; 140: 2530-2535
- [8] Thesleff I. Genetic basis of tooth development and dental defects. *Acta Odontol Scand.* 2000; 58: 191-194
- [9] Silva Meza R. Radiographic assessment of congenitally missing teeth in orthodontic patients. *Int J Paediatr Dent.* 2003; 13: 112–116
- [10] Peker I, Kaya E, Darendeliler-Yaman S. Clinic and radiographical evaluation of non-syndromic hypodontia and hyperdontia in permanent dentition. *Med Oral Patol Oral Cir Bucal.* 2009; 14: e393-7
- [11] Rakhshan V. Congenitally missing teeth (hypodontia): A review of the literature concerning the etiology, prevalence, risk factors, patterns and treatment. *Dent Res J* 2015; 12(1): 1-13
- [12] Mehran Bahrami, Fariba Saleh Saber, and Amirreza Hendi, Comprehensive Treatments for Congenitally Missing Teeth and Generalized Diastema. *Case Reports in Dentistry*, vol. 2017, Article ID 3254873, 5 pages, 2017