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OLIGODONTIA OF PERMANENT DENTITION :A CASE REPORT

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ABSTRACT

The present report highlights a case where a patient presented with midline diastema in the lower arch due to missing mandibular incisors and the esthetic and occlusal problems associated with permanent teeth Oligodontia. Congenitally missing teeth is the condition of having one or more missing teeth which cannot be observed clinically or in radiographic images. However, the prevalence of oligodontia in permanent teeth is reported to be 0.14%. There have been reports showing absence of maxillary lateral incisors, premolars, unilateral absence of mandibular incisors but agenesis of bilateral mandibular central incisors is not well documented in the literature. The early orthododntic intervention may eliminate some of the periodontal and restorative problems that could arise in these patients as adults. The aim of this case report is to document a case of congenitally missing permanent teeth along with other occlusal abnormalities and to discuss its clinical implications and management.

KEY WORDS : **Oligodontia, Hypodontia, Missing Mandibular Incisors, Midline Diastema**

INTRODUCTION

Oligodontia refers to congenital lack of more than six teeth excluding third molars[1]. It is a rare anomaly with a prevalence of 0.3% in permanent teeth and much less frequency in the primary dentition[2]. The etiology of missing teeth, however, is not fully clear[3]. Grahen[4] concluded that, in majority of cases, oligodontia is mainly determined by a dominant autosomal gene pattern with incomplete penetrance of the trait and variable expressivity[4,5].

The missing teeth cause disturbance in the developing occlusion, masticatory and verbal dysfunctions, and affects esthetics[3]. Therefore, a group of related specialists are required to cure such cases. The most frequently occurring congenitally missing permanent teeth, excluding third molars, are the mandibular second premolars (3.4%) and the maxillary lateral incisors (2.2%). The absence of teeth may be unilateral or bilateral. There are reports showing unilateral occurrence of permanent mandibular central incisors. But agenesis of bilateral mandibular central incisors is not well documented and literature shows paucity of data pertaining to this anomaly[1].

Aim of this paper is to report a case of non-syndromic oligodontia with other occlusal abnormalities, its clinical implications and management.

Case report

An 11 year old female patient reported to Department of Pedodiatrics and Preventive Dentistry, DAPM R V Dental College Bangalore, with a chief complaint of spacing in the lower anterior teeth **(Fig.1)**.

Fig.1. Extraoral frontal view photograph

Intraoral examination revealed a mixed dentition stage with presence of retained 71,81and clinically missing 32 **(Fig. 2)**. The other clinically missing teeth were permanent left 23, and 12, 22. High frenal attachment with midline spacing was present between maxillary central incisors **(Fig.3)**. Angle's class II molar relation was evident bilaterally.

Fig.2. Intraoral photograph showing missing 12,22 with high frenal attachment and midline diastema

The child's natal history and past medical history were not significant. Pregnancy and delivery were uneventful. No history of any systemic disease, syndrome, trauma or infection was evident. Family history revealed that the mother had missing permanent mandibular central incisors.

Periapical radiographs confirmed the absence of mandibular central incisors and maxillary lateral incisors **(Fig. 4)**. An OPG was taken to ascertain the presence and location of incisors, other clinically missing teeth and check for any other abnormalities. The radiograph confirmed the absence of six clinically missing teeth. Apart from these three of the third molars were found to be absent **(Fig. 5)**.

Fig.3. Introral occlusal photograph of mandibular arch showing spacing between the anterior teeth due to missing 32,31 and 41

It was decided to retain the deciduous incisors which showed no signs of root resorption and temporary crowns were fabricated according to patient's desire and restoration of decayed mandibular first molars with composite was completed **(Fig. 6)**.

Since there was not much spacing between the teeth in maxillary anterior segment it was decided to wait for the right permanent canine to erupt, following which replacement of other missing teeth along with treatment for high frenal attachment will be considered. The patient is being followed up for further need based treatment.

Fig.4. IOPA radiograph showing absence of 32,31 and 41

Discussion

Hypodontia or the congenital absence of at least one permanent tooth or tooth germ, is a common dental anomaly[6]. The absence of six missing permanent teeth is very rare (0.14%)[7]. Our case had nine missing permanent teeth including 3 third molars. Most studies report that girls have a higher prevalence of hypodontia than boys,[6] which was true in our case. Although the exact etiology of congenital agenesis of both central incisors is unknown, several factors like trauma, radiation, infection, metabolic disorders and idiopathic are the possible etiologic factors[1].

Newman and Newman (1998) have given four main theories for the cause of agenesis of incisors. Heredity or familial distribution is the primary cause[8]. Second, anomalies in the development of the mandibular symphysis may affect the dental tissues forming the tooth buds of the lower incisors[9].

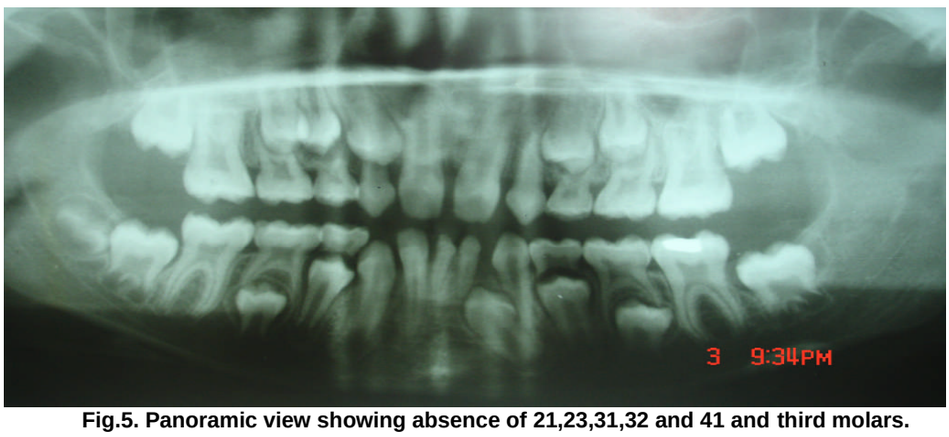

Fig.5. Panoramic view showing absence of 21,23,31,32 and 41 and third molars.

Third, a reduction in the dentition regarded as nature's attempt to fit the shortened dental arches (an expression of the evolutionary trend) and finally, localized inflammation or infections in the jaw and disturbance of the endocrine system destroying the tooth buds[8]. It has also been reported that genes MSX1, TGFA and PAX9 interaction sometimes play a role in human tooth agenesis[10].

Tooth eruption plays a critical role in continuous growth of mandibular symphysis, resulting in increase in height of mandibular body.[11]Severe malocclusion usually class II div 1 malocclusion with severe anterior deep bite and absence of dental midline or wide spacing in anterior region exists resulting in unaesthetic appearance for a child[1,11] . In our case the patient presented with class II malocclusion bilaterally. The missing lateral incisors, canines lead to an obvious asymmetry in patient's smile; shift in dental midline.[12]In the present case also there was obvious shift in the midline.

Fig.6. Postoperative intraoral photograph showing restoration of 36,46 with fabrication of temporary crowns for mandibular incisors.

The early loss of permanent teeth following trauma or congenital aplasia and agenesia need to be corrected by orthodontic or prosthetic means, sometimes combined with implant therapy. Selecting the appropriate treatment option depends on the malocclusion, the anterior relationship, specific space requirements and the conditions of the adjacent teeth[12].

Restorative procedure involves fabrication of removable partial denture as an immediate and temporary treatment to restore the missing teeth and esthetics. After the growth completion, fabrication of fixed partial prosthesis is the other treatment modality, if malocclusion is not a major problem.[1] Implants are commonly used to replace congenitally missing lateral incisors in adolescent patients[12].

Maxillary anterior diastema is considered a common esthetic complaint of patients frequently seen in children especially in mixed dentition stage. With eruption of lateral incisors and permanent canines, the midline diastema reduces. No treatment is initiated if diastema is physiological or transient. Generally abnormal frenal attachment may require removal either before orthodontic treatment or at the end of active treatment[13].

Careful treatment planning is important because there is a need to deal with not only the immediate, but a long term adverse complications. Treatment in the present case includes multidisciplinary management to improve the esthetics and function. Initially temporary crowns were placed on the deciduous incisors as patient was unwilling for extraction and also Fixed Partial Denture is contraindicated at this age.

As the patient reaches adolescence, conservative fixed prosthetic replacement of missing mandibular central incisors, frenectomy to correct midline diastema, orthodontic treatment to close spaces with advanced treatment strategy such as osseointegrated implants can be considered.

CONCLUSIONS

The missing teeth and abnormal occlusion is of concern both to the patients and the dentists. For the patients it may cause psychological distress and for the dentists to establish the functional and esthetic integrity is a challenging task.

- Dentist plays an important role in early diagnosis of these cases and their association or non-association with syndromes.
- Phenotype characterization prior to any surgical or orthodontic intervention may be sought.
- Prosthetic procedures can be undertaken to improve the esthetics thereby enhancing patient's confidence.

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