Agenesis of multiple primary and permanent teeth unilaterally and its possible management

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Abstract:
Oligodontia is the agenesis of numerous teeth (more than six teeth). Agenesis of teeth in primary and permanent dentition is a rare incidence, very few being reported in the dental literature. Although the etiology of congenital agenesis of teeth is unclear, several factors such as a tendency toward genetic predilection, metabolic disorders, trauma, infection, radiation or idiopathic reasons are found to be responsible. Available literature reports agenesis most often of third molars, maxillary lateral incisors, mandibular central and lateral incisors, and mandibular second premolars in decreasing order of frequency of occurrence.

There has been no report of agenesis of primary and permanent teeth in a complete mandibular quadrant in conjunction with the absence of maxillary second and third molars on the affected side. Here, we report an incidence of a rare occurrence of complete agenesis of more than 10 primary and permanent teeth, unilaterally, in the right mandibular quadrant, in a child of 10 years presenting with a chief complaint of several missing primary teeth and difficulty in speech due to its complete absence. Treatment strategies included various orthodontic and restorative procedures to improve esthetics and function. The orthodontic procedures involved expansion of the narrow maxillary arch to obtain a functionally adapted occlusion and creation of space for future alignment, and uprighting and protecting maxillary right posteriors to accommodate the tongue and rectify speech. Restorative procedures involved fabrication of a removable partial denture as a temporary measure to restore missing teeth, improve esthetics, give lingual support to the lower lip, prevent further downward growth of the right maxillary ridge and to prevent supra eruption of these teeth.

Key Words: Agenesis, oligodontia, symphysis

Introduction
Oligodontia is the agenesis of numerous teeth (more than six teeth). Agenesis of teeth in primary and permanent dentition is a rare incidence, very few being reported in the dental literature. Although the etiology of congenital agenesis of teeth is unclear, several factors such as a tendency toward genetic predilection, metabolic disorders, trauma, infection, radiation or idiopathic reasons are found to be responsible. Available literature reports agenesis most often of third molars, maxillary lateral incisors, mandibular central and lateral incisors, and mandibular second premolars in decreasing order of frequency of occurrence.

Males are more often affected than females. Maxillary primary teeth are more often found affected by agenesis than mandibular primary teeth. In the available literature reports missing teeth to be found bilaterally or unilaterally with a predisposition toward a similar phenomenon occurring in the permanent dentition. In the maxilla, frequently missing teeth are primary lateral incisor. In the mandible, the most affected teeth are central incisors, lateral incisors, second premolars, and third molars in descending order of their occurrence. In primary dentition, impaired growth of the alveolar process, reduced lower facial height, speech impairment, deep bite, restriction in the movement of the tongue due to ankyloglossia, asymmetry of the affected side of the face are clinical features evident in them.

There has been no report of agenesis of primary and permanent teeth in a complete mandibular quadrant in conjunction with the absence of maxillary second and third molars on the affected side. Here, we report an incidence of a rare occurrence of agenesis in a child of 10 years who was brought to the Department of Pedodontics and Preventive Dentistry, with a chief complaint of several missing primary teeth and difficulty in speech due to its complete absence, in the right mandibular quadrant. This resulted in an asymmetry of the right side of the face simulating that of a hemi-atrophy, which seemed to physiologically and psychologically have an impact on the young individual.
Case Report

A patient aged 10 years reported to the Department of Pedodontics and Preventive Dentistry, in a college in South India, with a complaint of speech impairment due to the absence of primary teeth in the right mandibular quadrant (Figure 1). Patients gave a negative history for consanguineous marriage and for missing primary or permanent teeth. On general examination, the child appeared healthy, well-developed, well-nourished with appropriate physical and mental growth for his age. No abnormality of the skin, hair, nails, and sweating was evident. However, facial asymmetry on the right lower third was present. The mandibular symphysis region was significantly deficient on the right side, and the lower lip lacked support and was placed inward. (Figure 2) Panoramic radiograph revealed the absence of primary and permanent teeth on the right mandibular quadrant including the second and third molars of the right maxilla and mandible (absence of 12 teeth). The complete primary and permanent compliment of teeth were present on the left side, both clinically and radiographically, including the second and third molars (Figure 3).

Intraoral examination revealed deficient right mandibular alveolar ridge from central incisor to the ramus of the mandible due to the absence of teeth. The anterior lingual frenum was attached to the crest of the ridge restricting the movement of the tongue. Difficulty in placing prosthesis in the region could be anticipated. The upper arch was “V” shaped and narrow, anterior teeth were proclined mildly and exhibited a deep bite. Continuous eruption of the right maxillary primary and permanent teeth had resulted in continuous growth of the right maxillary alveolar ridge, due to the missing opposing mandibular teeth. The teeth in the maxillary arch were placed palatal to the mandibular ridge.

Considering the age and clinical and psychological impact of the condition on the child, an effective treatment plan was evolved. Treatment strategies included various orthodontic and restorative procedures to improve aesthetics and function. The narrow maxillary arch had to be expanded to obtain a functionally adapted occlusion, creation of space for future alignment, uprighting and protecting posteriors for better function and to accommodate the tongue (Figure 4). Immediate restorative procedures involved fabrication of removable partial denture as a temporary measure to restore missing teeth and aesthetics, to give lingual support to the lower lip and to prevent further downward growth of the right maxillary ridge and supraeruption. Due to minimal volume of bone in the region, the placement of endosseus implants was considered unfavorable at this juncture. After expansion of the maxillary, arch implementing tongue exercises could increase articulation of the tongue and improve speech. Speech therapy was initiated with the help of a speech therapist. As the patient reaches adolescence, conservative fixed prosthetic replacement of the missing teeth would be the treatment of choice. The clinical findings were clearly explained to the parents and options of orthodontic correction, prosthetic...
rehabilitation and dental health instructions and periodic recall checkups given.

In the course of the above-said treatment, the patient was transferred from his present place of residence and was unable to come for follow-up. However, he has been advised to continue his wear of the removable partial denture and to continue with speech therapy.

Discussion

Present case report is a unique and interesting one as more than ten teeth, including primary and permanent teeth, are found missing in a whole quadrant unilaterally due to agenesis. Previously, a case report of eight missing teeth has been reported in the literature. Agenesis of anterior and posterior teeth has a large effect on growth of the mandibular symphysis and the height and width of the alveolar bone. Vertical and horizontal growth changes during childhood and puberty are more pronounced in the upper half of the alveolar ridge and symphysis. Tooth eruption plays an equally important role in the continuous growth of the alveolar bone and symphysis resulting in an increase in the height of the mandibular body. Congenital absence can result in a minimal volume of bone in the placement of endosseous implants in a favorable location. With the eruption of primary and permanent teeth, both anterior and posterior teeth, concomitant growth of the alveolar ridge height lowers the frenum attachment to the mucogingival junction. In this particular case, the absence of teeth in the anterior mandibular region impaired the growth of the mandibular ridge and was found responsible for ankyloglossia, impaired speech and tongue movements.

Multiple congenitally missing primary and permanent teeth are a rare entity and when found should be thoroughly investigated and parents made aware of the condition, the various modalities of treatment and the consequences, both physiological and psychological, on the patient explained. All these serious deficiencies require long-term prosthetic and preventive management for the proper development and well-being of the child.

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