CASE REPORT

Non-syndromic Oligodontia of Primary and Permanent Dentition - Clinical Features and Early Rehabilitation with an Esthetic Space Maintainer in an 8 years old Patient

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Abstract

Oligodontia is the congenital absence of six or more than six teeth in either permanent or primary dentition. Because of the missing teeth in these patients esthetic, functional and psychological problems may arise. This article reports a rare case of non-syndromic oligodontia in an 8 year old female patient of Asian origin. A total number of 7 permanent and 6 primary anterior teeth were congenitally absent. Psychological stress due to missing teeth was evident in the patient’s behavior. An ‘anterior esthetic space maintainer’ (space maintainer with partial denture) was fabricated to be fixed into the patients mouth to help her achieve better social acceptance. Management of conditions like Oligodontia could be challenging, the key for a successful outcome is early diagnosis and proper treatment planning involving all other concerned specialties. The rehabilitation with an interim prosthesis, like an esthetic space maintainer or removable partial dentures, at an early age and later with osseointegrated implants has shown promising results from the functional and psychological point of view for such cases.

Key words: oligodontia, hypodontia, severe partial anodontia.

Introduction

Congenital absence of one or two teeth is one of the most common dental anomalies. The congenitally missing teeth are those who have failed to clinically erupt in the oral cavity and on radiographic examination there is no sign of teeth starting to appear; the cause is usually disturbance during the early stages of tooth development[1]. Anodontia is the absence of all primary or permanent teeth and it is very rare, on the other hand, hypodontia is the congenital absence of up to five primary or permanent teeth (excluding third molars). Oligodontia is the severe form of hypodontia in which there is congenital absence of six or more teeth (excluding third molars)[2]. In most populations, the reported prevalence of permanent tooth agenesis, excluding third molars, varies from 2.2-10.1%. [Polder, et al,. 2004] [3]. As the number of missing teeth increases the prevalence becomes progressively smaller. The incidence of oligodontia is reported to vary from 0.08 to 0.16%. [4]. Oligodontia is often associated with specific syndromes affecting several body organs and systems. Oligodontia can be classified as non-syndromic (isolated) and syndromic. Isolated form can be familial or sporadic in nature. There are more than 49 syndromes associated with congenital absence of teeth. When oligodontia is a part of syndrome, concomitant abnormalities of skin, hair, nail, eyes or skeleton are present in the patient.

Case Report

A female patient, 8 year old, presented to Department of Pediatric Dentistry, Institute of Dentistry, CMH Lahore Medical College, along with her parents with a complaint of an unpleasant smile. Detailed history from the patient and her parents revealed that the patient is teased at school
by other students because of her smile and have a poor peer group relationship. Medical history of the patient was non-significant. This was the patient’s first visit to any dentist. Extra-oral examination revealed no skeletal abnormality and facial asymmetry. Intra-oral examination revealed a large midline diastema and distally diverging maxillary central incisors. Permanent maxillary lateral incisors and all four mandibular incisors were not present clinically. Carious lesions were present on 54, 55 and 64. Periodontal health of the patient was satisfactory. Parents of the patient confirmed that missing teeth were not due to extraction or trauma and primary predecessors of these teeth i.e. 52, 62, 71, 72, 81 and 82 never erupted. Radiological assessment was performed which revealed that 12,22,23,31,32,41/42 are congenitally absent and permanent buds of all other teeth excluding third molars were present. Clinical and radiological assessment of maxillary and mandibular alveolar bone revealed that mandibular alveolar bone is very thin and deficient (Refer to Fig 1,2,& 4).

Thorough physical evaluation was performed with particular attention to the skin, hair, nails, eyes and ears of the patient all of which appeared normal. There was no skeletal abnormality. Parents of the patient reported no sweating abnormality. Family history was non significant.

A total number of seven permanent teeth (12,22,23,31,32,41/42) and six primary teeth (52, 62, 71, 72, 81 and 82) were missing congenitally. A diagnosis of a case of ‘non-syndromic oligodontia of primary and permanent dentition’ was established.

After a thorough evaluation and study of the patient’s case provision of an interim prosthesis for the mandibular arch was planned as the first line of treatment. A consultation from Orthodontics department was made where an initial orthodontic evaluation was thoroughly performed. It was decided that patient will have to undergo fixed orthodontic wire therapy starting at the appropriate age i.e. after the eruption of the permanent teeth (premolars and canines). Orthodontic therapy is required for the closure of the wide midline diastema and to create space for the permanent prosthesis. Osseointegrated implants were selected as the final prosthesis for all the congenitally missing teeth. Implants shall be placed once the skeletal growth of the jaws has been completed.

Patient and both the parents of the patient wanted an esthetically acceptable and fixed prosthesis for the lower arch for early rehabilitation. Therefore, to guide the lower permanent canines to erupt at their proper positions in the arch, for better function and to boost patient’s confidence a Fixed Esthetic Space Maintainer i.e. An anterior space maintainer with acrylic partial denture was fabricated to function as an interim prosthesis (Refer to Fig 3).

The condition and its management were explained to the patient and her parents. During the initial two appointments small carious lesions present on 54 and 55 were restored using Resin modified Glass Ionomer Cement. Tooth 64 was unrestorable and was extracted. Patient was recalled after a week. Pre-treatment occlusal study of the lower diagnostic cast was performed. Molar bands were place on 75 and 85 followed by an alginate impression. Impression was removed and molar bands were placed and secured in the alginate impression. Dental stone is poured up to make the working cast. After curing, finishing and polishing, appliance was cemented on 75 and 85 with luting glass ionomer cement. Occlusion checked for any premature contacts.

Post treatment instructions were given to the patient. First follow up visit was made after 24 hours. The patient appeared happy on receiving the appliance and her parents showed satisfaction towards the treatment. Regular 3 months follow up visits were scheduled for complete management of the condition. Family was willing to get the treatment.

Discussion

In this report, the patient presented with the congenital absence of 7 permanent and 6 primary anterior teeth. Studies on the prevalence of Oligodontia have shown that majority i.e. more than 80% of the population will present with one or two congenitally missing teeth while less than 1% will present with six or more teeth missing [6]. There are very few cases reported in literature in which primary teeth are congenitally missing. Studies have shown that the most commonly missing teeth are permanent premolars and maxillary lateral incisors [7] but in this case all permanent premolars were present.

In addition to Oligodontia, other dental problems in this patient were deficient alveolar bone in the mandibular arch and a midline diastema in the maxillary arch. Another significant finding was that the pattern of missing teeth was asymmetrical i.e. 23 was missing congenitally but the tooth bud for 13 was present and developing. Complete management of all these dental problems in a patient suffering from oligodontia is through an interdisciplinary approach i.e by involvement of team comprising of a pediatric dentist, orthodontist, prosthodontist and an oral & maxillofacial surgeon [6,7,8]. Moreover, psychological stress was evident in this patient’s behaviour. Congenital absence of teeth can create dental and facial disfigurement, which can lead to social withdrawal [9]. Normal psychological development of the child with oligodontia is also of major concern. Therefore, the fixed esthetic space maintainer fabricated for the patient in this case would help her to improve her peer group relationship, guide
38

the $33$ and $43$ to erupt into the proper position in the mandibular arch and prevent her from developing abnormal speech and tongue habits. An Esthetic space maintainer is basically a fixed lower space maintainer with an anterior acrylic partial denture. (Refer Fig. 2). The problems with this type of space maintainer would be that appliances are weak and require frequent alternations as dentition changes with time. And may increase the caries risk if patient is not brushing teeth regularly. Alternative treatment option would be a removable partial denture.

**Conclusion**

Conditions like oligodontia have a substantial impact on the functional and psychological maturation of the child. Management of oligodontia patients could be challenging, the key for a successful outcome is early diagnosis and proper treatment planning involving all other concerned specialties. Early rehabilitation with interim prosthesis will help the child interact better with his peers and society. Final treatment with osseointegrated implants and supplemental bone augmentation procedures has shown successful treatment outcomes in such cases.

**References**

Fig 3. Post treatment Intraoral View

Fig 4. Panoramic Radiographic View.