Case report

Non-syndromic oligodontia – Report of a clinical case with 14 missing teeth

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Abstract

Oligodontia (severe partial anodontia) is a rare developmental dental anomaly refers to congenital lack of more than six teeth. Most often oligodontia appears as part of some congenital syndromes that affects several organ systems. The exact etiology for oligodontia is unknown. Management includes various restorative and orthodontic procedures to improve the esthetics and function. The present article reports a case of oligodontia of 14 number of permanent teeth excluding third molars in a non-syndromic female patient.

Key words: oligodontia; hypodontia, partial anodontia, tooth agenesis.

Introduction

One of the most common anomalies seen in the permanent dentition is the absence of one or more teeth. Various terminologies have been used to describe the congenital absence of teeth in the primary or permanent dentition. Hypodontia is used to describe the absence of one or few teeth, oligodontia is used for agenesis of numerous teeth and anodontia is the extreme of oligodontia where there is total absence of any dental structure. [1] Oligodontia is a condition that is often associated with specific syndromes and/or severe systemic abnormalities, while anodontia is commonly seen in severe cases of ectodermal dysplasia. [1, 2] Congenital absence of teeth may be from physical obstruction or disruption of the dental lamina, space limitation, and functional abnormalities of the dental epithelium or failure of initiation of the underlying mesenchyme. [1] Characteristic dental symptoms are a reduced number of teeth, a reduction in tooth size, anomalies of tooth form, and delayed eruption. The absence of teeth in young patients can cause esthetic, functional, and psychological problems particularly if the teeth of the anterior region are involved.

Case report

A 13-year-old female patient reported to a private clinic, complaining of missing teeth in the lower anterior region. Clinical examination revealed presence of permanent teeth like 16, 11, 21 and 26 in the maxillary arch, 36, 35, 34, 44, 45, 46 and 47 in the mandibular arch. Retained primary teeth like 55, 53, 63, 65 and 73 were also present [Figure 1 & 2]. 53 and 63 were in grade II mobility. The remaining permanent teeth were missing clinically [Figure 1 & 2]. Soft tissues were normal. Patient was born to non-consanguineous parents. There was no history of any infection or trauma to the anterior region. Patient mother gave a history of presence of milk teeth in the lower anterior region but after their exfoliation, permanent teeth did not erupt. Patient was healthy with no relevant medical and family history. Suspecting the congenital absence of permanent teeth panoramic radiograph was taken which showed congenital absence of teeth like 17, 14, 13, 12, 22, 23, 24, 27, 37, 33, 32, 41, 42 and 43 [Figure. 3]. 31 was impacted with crown displaced distally and root displaced mesially to the midline of mandible. Third molar tooth buds in both maxillary and mandibular arches were also absent [Figure 3]. In view of the oligodontia of permanent teeth, a detailed examination was done to rule out syndromes associated with oligodontia.

The patient was normal in her facial appearance and did not show any physical or skeletal abnormality. Radiological examinations of the clavicles, vertebral skeleton, skull and chest were found to be normal. Ophthalmological and neurological examination of the patient revealed no pathological symptoms and showed no signs of mental retardation. Hematological and biochemical findings were within the normal limits.

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Based on the above findings the case was diagnosed as non syndromic oligodontia of permanent teeth. Extraction of the mobile deciduous teeth followed by removable partial denture fabrication was done to restore esthetics and masticatory function [Figure 4].

Discussion

Oligodontia (severe partial anodontia) is a developmental dental anomaly refers to congenital lack of more than six teeth excluding third molars. [1] Most often oligodontia appears as part of some congenital syndromes that affects several organ systems. [2] The exact etiology for oligodontia is unknown. Various factors have been described in the literature. Heredity is the main etiological factor. [3] Several environmental factors like virus infections, toxins and radio or chemotherapy may cause missing of permanent teeth. [4] However, most of the cases are caused by genetic factors.

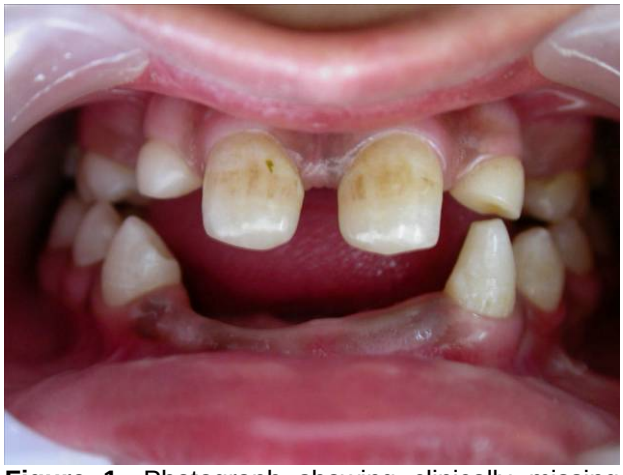

Figure 1: Photograph showing clinically missing permanent lower anterior teeth.

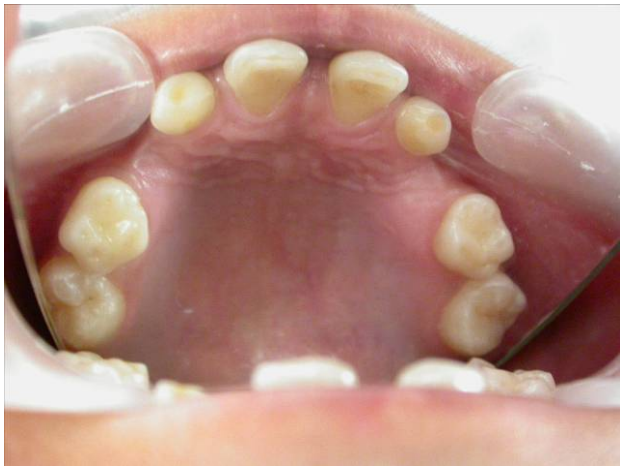

Figure 2: Photograph of maxillary arch showing missing multiple permanent teeth

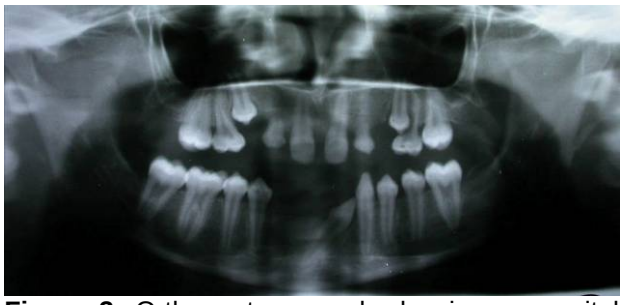

Figure 3: Orthopantomograph showing congenital absence of multiple permanent teeth

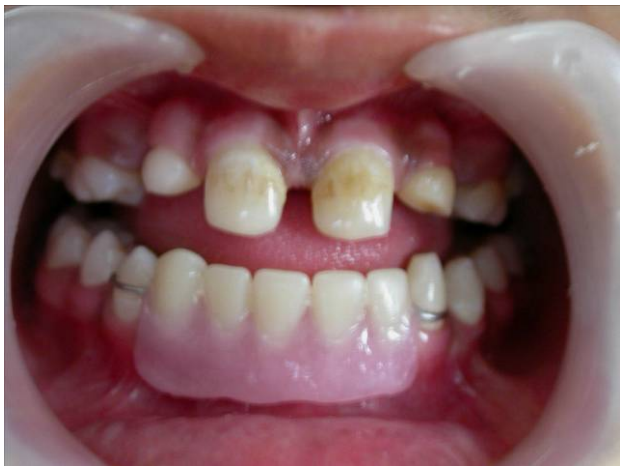

Figure 4: Prosthetic rehabilitation of the patient

The heritability of congenitally missing teeth has been shown in many studies. [5, 7] The genetic factors may be dominant or recessive and it is obvious that in many cases multiple genetic and environmental factors are acting together. [5, 6] The importance of genetic factors is shown by appearance of multiple cases among relatives and higher concordance in identical than in non-identical twins. [7] It is also reported that several genes which, when defective, cause congenitally missing teeth. Mutations in different genes may cause different types of oligodontia i.e. different sets of teeth are missing. Perhaps the best family study of tooth agenesis was done by Grahnen in 1956. [3] He found that if either parent had one or more congenitally missing teeth, there was an increased likelihood that their children also would be affected. This familial relationship suggests that the genes are important. Most dental anthropologists would probably agree that the absence of teeth in the "normal" individual is a polygenic trait. Several investigators have suggested that tooth agenesis is an example of a "quasi-continuous" trait.

Comprehensive literature review shows only countable number of cases reporting maximum

number of congenital missing of permanent teeth. Tsai et al [8] have reported a case of oligodontia in 6-year-old female patient with congenital absence of 16 permanent teeth. Akkya et al [9] in their case report of 16-year-old patient have reported oligodontia of 6 permanent teeth. Rasmussen P [10] reported non-syndromic 9 cases with absence of 14 - 24 teeth excluding third molar. The present report shows congenital missing of 14 permanent teeth with no identifiable etiology.

Patients suffering from oligodontia may have severe psychological, esthetic, and functional problems. Thus, early diagnosis and treatment of these patients is very important. The treatment of oligodontia could be challenging if there are several missing teeth and malocclusion is present. [11] There are a number of options available to restore space generated by missing teeth. Dental treatment can vary depending on the severity of the disease and generally requires a multidisciplinary approach. Treatment options include orthodontic therapy, implants, adhesive techniques, removable partial prostheses, fixed prostheses and over dentures and they are indicated depending on the type of condition. Most cases require the construction of a partial denture as an intermediate procedure before fixed prostheses are constructed. Treatment not only improves speech and chewing function but also has psychological implications that may greatly help in regaining self-confidence.

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