Case Report

A rare case report of Oligodontia in the permanent dentition

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Abstract

Oligodontia is a rare congential disorder of dental anomalies that can occur either as an isolated finding or as part of a syndrome. It is defined as agenesis of six or more teeth excluding the third molars. It is commonly seen in permanent than in deciduous dentition. Patients suffering from oligodontia may present with complex problem such as dental and facial disfigurement. Management of those cases generally requires multidisciplinary approach to restore esthetic and function. This paper reports a rare case of oligodontia in an 18 year old adult female patient who has been missing eight permanent teeth excluding the third molars, clinically and radiographically.

Keywords: oligodontia; dental agenesis; partial anodontia; hypodontia

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Introduction:

Agenesis of teeth is one of the commonest dental anomalies seen in the permanent dentition[1]. In the literature, various terminologies have been used to describe the congenital absence of teeth in the primary or permanent dentition. Hypodontia is used to describe the agenesis of one or few teeth. Oligodontia is used to describe agenesis of six or more teeth excluding the third molars. Anodontia is complete absence of all the permanent teeth[2]. Hypodontia has a prevalence of 1.6% to 9.6% in the permanent dentition, excluding agenesis of the third molars. In the deciduous dentition, hypodontia occurs less often (0.1%-0.9%) and has no significant sex distribution. Oligodontia has a prevalence of 0.3% in the permanent dentition[3]. Oligodontia occurs more frequently in girls at a ratio of 3:2. It may occur as a part of a syndrome or as an isolated condition that has been linked to mutations of the MSX1 and PAX9[4].

The absence of multiple permanent teeth in young patients can cause esthetic, functional and psychological problems. Restoring esthetic and functional problems in oligodontia patient generally requires a multidisciplinary approach, includes Orthodontist, Endodontist, Oral and maxillofacial surgeon and Prosthodontist. The purpose of this article is to report a rare case of nonsyndromic oligodontia with agenesis of eight permanent teeth excluding the third molars in a18 year old adult female patient.

Case report:

A 18 year old female patient reported to the department of orthodontic with a chief complaint of spacing and malaligned upper teeth. The patient past medical history and the family history were not significant. Extraoral examinations revealed no abnormalities of the skin, hair or nails [Figure.1]. There

Figure.1: Extraoral frontal and profile photographs

was no abnormality detected on general examination. On intraoral examination 20 permanent and 3 retained deciduous teeth were present clinically.

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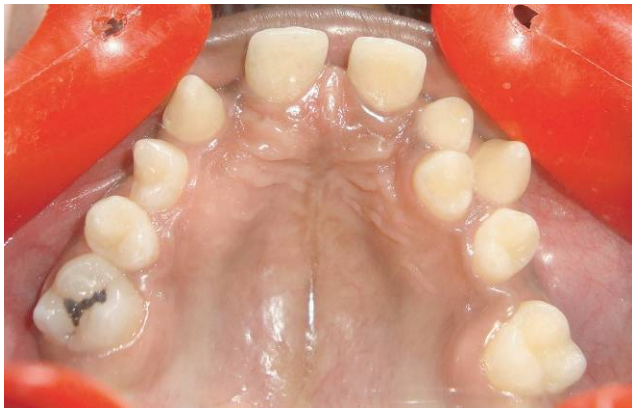

Figure.2: Maxillary arch shows spacing, multiple missing teeth & rotated premolars and molars

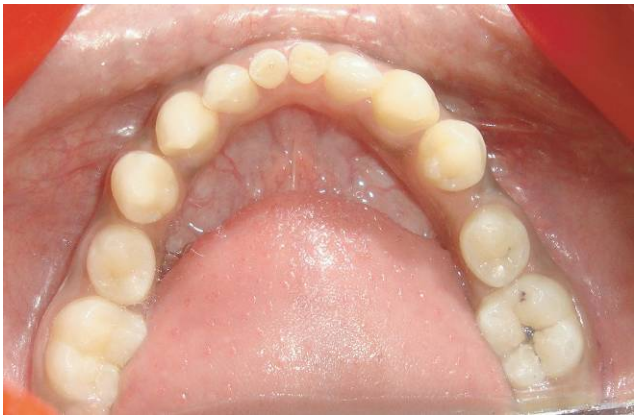

Figure. 3: Mandibular arch shows multiple missing teeth, retained 71&81 and rotated second premolars

Maxillary permanent canines cusp tip appear sharp and pointed. Maxillary and mandibular premolars appear smaller in size. Maxillary right first premolar was placed palatal in relation to maxillary right canine. Maxillary left first, right second and mandibular both second premolars were mesiolingually rotated. Maxillary both first molars were also

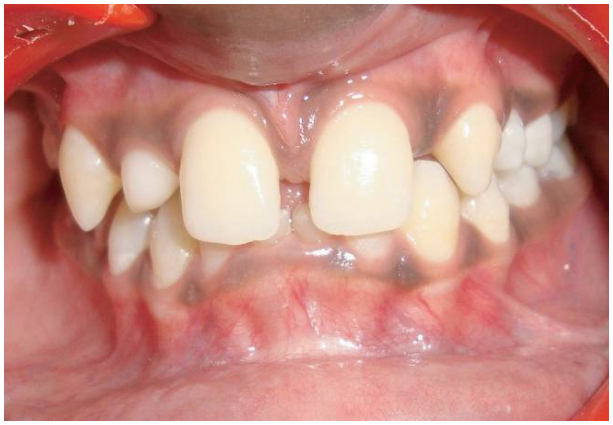

Figure.4: Intraoral frontal photographs shows midline diastema, deepbite & retained 52

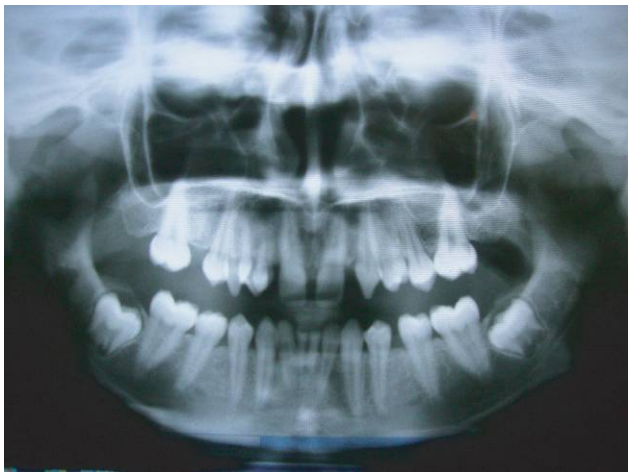

Figure.5: Orthopantogram shows multiple missing teeth 12,22,17,18 ,22,27,28, 31, 41, 38& 48 and retained 52,71& 81.

rotated mesiopalatally. Spaces were present in between 11& 21, 21&23, 23&24, 11&53, 53&13,15&16, 43&44, 44&45, 34&35. Pulp canal exposure and attrition were seen clinically in 71& 81. Retained deciduous tooth 52 was present. Occlusal caries were noted in 26 and 36. 14 was in crossbite relation [Figure.2&3]. Lower incisors teeth were retroclined and anterior deepbite present [Figure.4]. The orthopantomographic examination

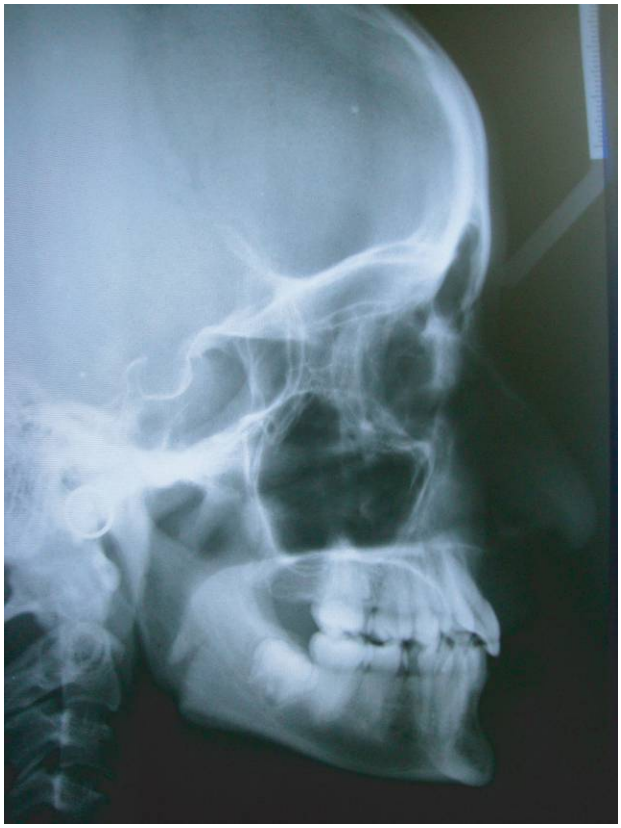

Figure.6: Lateral cephalogram shows retrognathic maxilla and mandible

revealed agenesis of ten permanent teeth including third molars. The missing teeth were 12,17,18,22,27,28,31,41,38 and 48. The panoramic radiography also revealed presence of retained deciduous teeth 52, 71 and 81. Crown formation was completed with one third root formation were started in 37 and 47 [Figure.5]. Lateral cephalogram reveals retrognathic maxilla and mandible, decreased lower facial height and dentoalveolar height, deepbite, decreased maxillary length, thin upper and lower lips and deep mentolabial sulcus [Figure.6]. The patient was diagnosed as a case of oligodontia since more than six permanent teeth were congentially missing excluding the third molars.

Discussion:

The following definitions are proposed in oral implants conference which was held in 1996: hypodontia is defined as the absence of one to five permanent teeth, while the term oligodontia refers to the absence of six or more permanent teeth and anodontia to the absence of all permanent teeth[6].

Oligodontia is also known as partial anodontia, severe or advanced hypodontia and selective tooth agenesis. The most commonly missing teeth in oligodontia are the permanent second premolars and maxillary lateral incisors, whereas the permanent first molar and maxillary central incisors are the most stable teeth. However, in some cases molar absence is an important feature of isolated oligodontia[2,3].

Oligodontia is classified as isolated or non- syndromic oligodontia and syndromic oligodontia or oligodontia associated with syndromes. Oligodontia can occur in association with various genetic syndromes, such as Ectodermal dysplasia, Incontinentia pigmenti, Down syndrome, Rieger syndrome, Wolf-Hirschhorn syndrome, Van der Woude syndrome, Ectrodactyly- ectodermal dysplasia – clefting syndrome, Cleft lip palate ectodermal dysplasia syndrome, Oral facial digital syndrome type I, Witkop tooth- nail syndrome, hair- nail-skin- teeth dysplasias[7].

The exact etiology for oligodontia is unknown, but heredity is considered to be the main etiological factor and environmental factors like viral infections, toxins, radiotherapy or chemotherapy may also cause agenesis of permanent teeth. The heritability of congentially missing teeth has been shown in many studies. The importance of genetic factors is shown by appearance of multiple cases among relatives and higher concordance in identical than in non- identical twins. Grahnen reported that if either parent had one or more congentially missing teeth, there was an increased chance that their children also would be affected[8]. Recent molecular studies shows that mutations of MSX-1, PAX-9 and LTBP3 genes have been associated with agenesis of teeth[9].

Dentoalveolar characteristics features of oligodontia are deep bite, cross bite, attrition, steep inclination of maxillary incisors, disturbances in eruption, delayed eruption, ectopic eruption, overretained primary teeth, microdontia, conical shape of incisor and canine. It also affects maxillofacial skeleton structures in different planes, includes maxillary retrognathism and hypoplasia, mandibular retrognathism, decreased vertical and transverse dimension of alveolar process, decreased lower facial height and deep mentolabial sulcus[9].

The present case report shows dental agenesis of eight permanent teeth excluding the third molars with no identifiable etiology. In this case, oligodontia was not associated with family history and the patient was not suffered from any syndrome or systemic disorders. Hence this case was diagnosed as isolated oligodontia.

Congential missing teeth can create dental and facial disfigurement, which can lead to social withdrawal, especially in adolescent years. Treatment of such patients requires a multidisciplinary team approach, includes Orthodontist, Endodontist, Oral and maxillofacial surgeon and Prosthodontist. Treatment options depends on the severity of the condition and patients perceived need for care. A number of factors must be taken into account at the time of treatment planning, which includes age of the patient, number and condition of the retained teeth, number of missing teeth, condition of supporting structures, the occlusion and the interocclusal space. Most oligodontia cases requires pre restorative orthodontic treatment to move teeth into a favorable position for prosthetic restoration. Prosthetic appliance includes removable or fixed partial denture and implant – supported prosthesis with or without bone augmentation are used to restore missing teeth[10-13]. Patient and parents are very cooperative and interested towards orthodontic and prosthetic treatment, but they would like to start treatment in vacation holidays.

Conclusion:

Oligodontia case should be evaluated carefully by

clinicians for proper diagnosis and to formulate appropriate treatment in order to minimize further complications. Most cases require coordination of multidisciplinary team work to restore esthetic and functional problems. Early treatment not only improve esthetic and functional problem but also regain self confidence of the patient.

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