CONGENITALLY MISSING TEETH : A CASE REPORT

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ABSTRACT
Congenitally missing teeth have been observed as one of the most common human dental developmental anomalies. In the permanent dentition the prevalence rate of true partial exodontias is 3.5% to 6.5%. The most likely factors of hypondontia are hereditary, environmental factors and evolution. Various studies have demonstrated differences in frequency and Patten between sexes, and in frequencies among the races. A case of eight congenitally missing teeth is presented.

KEY WORDS: congenital, missing teeth,

INTRODUCTION:

The anomalies of teeth have always been of great interest to the dentist from the scientific as well as the practical view point. Scientific analysis of the congenital absence of teeth in humans dates back to the early 1990's. Hypodontia has been observed as one of the most common human dental developmental anomalies.

For the orthodontist the subject of congenital absence of teeth has direct clinical importance. Treatment planning and space management for patients during the mixed dentition period must obviously include an evaluation of the number of teeth in both jaws. Knowledge of a congenitally absent tooth in one position should lead the clinician to consider the size and number of the remaining teeth.

True anodontia or congenital absence of teeth can be classified into two types, total and partial. Total anodontia, in which all teeth are missing, may involve both the deciduous and the permanent dentition. True partial anodontia involves absence of one or more teeth.

In the permanent dentition the prevalence rate of true partial anodontia is 3.5% to 6.5% excluding agenesis of the third molars [1-3]. Agenesis of only the third molars has a prevalence between 9% to3 7%.[4-6.] In the deciduous dentition hypodontia occurs in 0.1% to 0.9% of the population. Severe hypodontia has a population prevalence of 0.3% in the permanent dentition. [1, 7-9].

Etiologic considerations:

There is still no precise description of the casual factors underlying the lack of formation of certain teeth[9] . The pattern of agenesis is explained by Butler's field theory[10] that key tooth is most mesial in each class. The most likely factors however are hereditary, environmental factors and evolution. [11, 12].

In addition to genetic factors, the congenital absence of teeth may result from disturbances during the initial stages of tooth development, such as ectodermal dysplasia, trauma, localized inflammation or infectious diseases and systemic problem such as rickets or syphilis and severe intrauterine disturbances have all been proposed as possible factors[12] Moreover, it has also been suggested that there is a tendency for a reduction in tooth numbers in haman beings todentitional evolution. The small jaw of modern man is said to be unable to accommodate the original complement of teeth. [13]

Several mechanisms have been implicated as causes of hypodontia[14.] Physical disruption of the dental lamina may result in obliteration of tooth buds and agenesis of teeth. Such disruption is seen in disorders such as the orofaciodigital syndrome, Ellisvan syndrome, and cleft lip and palate. There

Fig: 1-a

Fig: 1-b

Fig: 1-c

Fig: 1-d

Fig: 1-e

Fig: 1-f

Fig: 1-g

may be a metabolic imbalance of such nature that a curcial metabolite for odontogenesis is absent and agenesis results. Finally inherent defect of the lamina or underlying mesenchyme may result in agenesis.

Hypodontia certainly fulfills some of the criteria for judging a trait as genetic. There is no identifiable environment insult in its cause, the age of onset is characteristic from one affected person to another, it occurs more often among relatives than among non related persons. Various studies have demonstrated differences in frequency and pattern between the sexes, and in frequencies among the races. [15, 16].

Review of literature:

Clayton [17] in his study of 3,557 human subjects noted a 6% rate of congenital absence of teeth with the terminal or most posterior tooth of tooth series (incisors, premolars, molars) missing most frequently. He hypothesized that those teeth most often missing were “vestigial organs” that had little practical value for modern man, with out real functional advantage, these teeth should loose selective advantage and through time will be lost from the species.

Most studies specify women as exhibiting more partial anodontia that men. [18,19] Egermark-Erikson [20] specified 3:2 ratio of women to men in their studies, while noting greater incidence of hypodontia in women, and more hyperdontia in men.

Garn and Lewis,[6] Baum and Cohen[21] noted changes in tooth morphology and size of teeth in persons with hypodontia. They reported a dimunition in size of associated teeth, particularly in the mesiodistal dimension. Keene [22] reported a significant correlation between the absence or reduction in the size of the remaining teeth when third molars were missing.

Roberts,[2] analyzing ankylosis and noting its frequent association with congenital absence of teeth hypothesized that familial predisposition to one dental anomaly might make that family more prone to other dental abnormalities. He noted that in families with a history of congenital absence of second premolars, “unaffected” often had shortened second premolar roots.

Sofaer and associates [24] stated absence of teeth on one side of the dental segement induces a compensatory increase in size of the teeth on the other side.

A study was performed by Lapter e al [25] in a sample of 96 twin pairs to establish prevalence of hypodontia in the twin sample and to asses the degree of its heritability. Hypodontia was found in 22 out of the total of 192 twins analyzed (11.5%). Among 96 pairs of twins hypodontia was observed in 17 pairs (7 MZ and 10 DZ pairs). They concluded that prevalence of hypodontia in twins observed in this study was significantly higher than in the general population. A high degree of heritability pointed to high genetic determination.

Fig.2

Daugard-Jensen et al[26] compared the pattern of agenesis in the primary and permanent dentitions in a population characterized by agenesis in the primary dentition. Results showed that agenesis always occurred in the permanent dentition and that the pattern of agenesis in the permanent dentition differed from that in the primary dentition. Incisors were most frequently missing in the primary dentition and premolars in the permanent dentition. The number of congenitally missing teeth was substantially larger in the permanent dentition than in the primary dentition.

Benward at al[27] studied the prevalence of congenitally missing teeth in class I, II, III

malocclusions and found highest prevalence of congenitally missing teeth in class II malocclusions and found highest prevalence of congenitally

missing teeth in class II malocclusion patients and significant amount of missing maxillary teeth in class III malocclusion patients.

Hobkirk et al [28] surveyed presenting complaints in a ground of hypodontia patients. The most common complaints were missing teeth, spacing in the dental arches, and poor appearance.

Case report:

An interesting case of multiple congenitally missing teeth both in the maxilla and mandible is reported.

An 18 years old Female patient with chief complaint of forwardly placed upper front teeth. On intra oral examination there was class II molar relationship with maxillary right and left 1st and 2nd premolars visible clinically. The deciduous maxillary right and left canines, and deciduous 2nd molars were still retained. The maxillary permanent canines erupted distal to their normal positions. In addition the deciduous maxillary right and left 2nd molars were retained.

The mandibular right first and second premolar, and left 2nd premolar, and 1st molar were also not visible clinically. A retained left deciduous second molar was present.

Intraorally, there was 8mm of overjet and 5mm of overbite. The maxillary and mandibular erch were symmetrical with spacing in the anterior region. The oral hygiene was good with no clinically visible caries and the gingival tissues appeared healthy. There was no history of permanent teeth being extracted.(Fig1.A-G)

The panoramic radiograph (Fig-2) revealed the presence of third molars, missing 14, 15, 24, 25, 35, 36, 44, 45.

Discussion:

The theory proposed by Butler [10] and Brook [12] explain the more frequent patterns of agenesis. This case serves as an example of missing mandibular first molar, missing maxillary first and second premolars .

There is no decrease in the mesiodistal dimension of any other teeth which is in contrast to the various studies, [6, 21, 22] that the congenital absence of one or more teeth leads to the reduction in size of the remaining teeth.

CONCLUSION:

A case of Eight congenitally missing teeth is reported. Hypodontia most frequently results in spacing of dentition and possible occlusal dysfunction, often requires complex orthodontic or prosthodontic treatment to correct the defect and to improve function and aesthetics.

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