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International Journal of Pharmaceutical Research & Allied Sciences, 2023, 12(1):106-109
https://doi.org/10.51847/MLRKb4kzVC

Review Article

ISSN : 2277-3657
CODEN(USA) : IJPRPM

Literature Review on Diagnostic and Management Approach of Anodontia

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ABSTRACT

Pediatric dentistry includes key subspecialties that deal with the diagnosis and treatment of dental abnormalities. These diseases range from having no teeth at all (anodontia) to having more teeth than one would typically have (hyperdontia). When referring to missing or absent teeth, some people may use the term "agenesis," which is the inability of all or a portion of an organ to form during embryonic growth. Some kinds of dental agenesis can be catastrophic and debilitating, resulting in a poor quality of life, even if minor cases may not even be discovered until later in life. The Medline, Pubmed, Embase, NCBI, and Cochrane databases were searched for studies of patients with non-alcoholic fatty liver disease. Incidence, etiology, and management options were analyzed. When detected and diagnosed early on, anodontia, hypodontia, and oligodontia typically have favorable treatment results. Different prosthodontic and restorative treatments are available, depending on the amount and quantity of lost teeth. Since severe hypodontia is frequently accompanied by syndromes, treating the condition must often come before treating the dentition.

Key words: *Anodontia, Dental anomalies, Hypodontia, Supernumerary teeth, Craniofacial*

INTRODUCTION

Pediatric dentistry includes key subspecialties that deal with the diagnosis and treatment of dental abnormalities [1, 2]. Even though most dental abnormalities first appear in children, many of them go undiagnosed or untreated, maybe due to a lack of knowledge or because the case is seen to be "too tough." Numerous issues can arise during typical tooth growth, which might affect the number of teeth that are actively growing. These diseases range from having no teeth at all (anodontia) to having more teeth than one would typically have (hyperdontia). When referring to missing or absent teeth, some people may use the term "agenesis," which is the inability of all or a portion of an organ to form during embryonic growth. Some kinds of dental agenesis can be catastrophic and

debilitating, resulting in a poor quality of life, even if minor cases may not even be discovered until later in life [3].

Agenesis of teeth, which can vary from the lack of a single tooth to the failure of all the teeth to grow, frequently occurs as a syndrome. Dental agenesis in milder forms is often treatable with relatively non-invasive techniques. Depending on how many teeth are impacted, these diseases are categorized. Although anodontia, hypodontia, and oligodontia all share the same etiology, each condition's severity affects how it manifests phenotypically [4]. In non-syndromic instances, the etiology for the inability of teeth to form has been related to 15 causal genes [3]. When dental agenesis is linked to a syndrome, as is the case with ectodermal dysplasia, the condition is referred to as syndromic hypodontia [5] One or more teeth's inability to erupt or displacement have both been linked to orofacial clefting [6].

Epidemiology

One of the most frequent dental abnormalities is tooth agenesis. Although there is no mention of sex prevalence, earlier research revealed that this condition was more common than 3% to 11% across European and Asian populations [7]. Furthermore, various ethnic groups report distinct kinds of missing teeth. Oligodontia, which is caused by the underdevelopment of tooth germs, is characterized by the absence of at least six permanent teeth, excluding wisdom teeth. The condition may exist alone or in conjunction with other ectodermal syndromes and abnormalities, such as cleft lip and palate and ectodermal dysplasia [8]. Most cases of hypodontia are non-syndromic. In addition, numerous epidemiological research has revealed that the prevalence of oligodontia varies depending on ethnic background, with an average of between 0.1 and 0.2% of the world's population affected [9]. In its non-syndromic variants, the pathology's familial and sporadic forms are linked to various polymorphisms or mutations of the Paired Box 9 (PAX9) or Muscle Segment Homeobox 1 (MSX1) genes.

Even though the absence of permanent teeth is frequently referred to be congenital, it is obvious that they would not be anticipated in the mouth cavity at birth. The primary dentition is unaffected when agenesis occurs as an independent characteristic, according to Gorlin and colleagues, and the inheritance is autosomal recessive [10]. An 11-year-old child was described by Swallow as having a full primary dentition but no permanent teeth [11]. Schneider also saw a 7-year-old Caucasian girl who was missing her permanent teeth but had primary teeth [12]. The genetic background did not contain any known consanguinity in the family or a history of anodontia or ectodermal dysplasia in either the maternal or paternal lines, as is typically the case with suspected autosomal recessive inheritance.

Symptoms and signs

Lack of teeth is the primary sign of anodontia.

Signs include [13]:

- A baby who doesn't have any baby teeth by the time they're a little over a year old;
- A youngster who doesn't have any permanent teeth by the time they're in their teenage years.

Ectodermal dysplasia symptoms may sometimes be accompanied by other symptoms, such as:

- Cleft lip or cleft palate
- Rapid hair loss or patchy baldness
- No sweating or less sweating
- Missing fingernails

A physical examination will be done if anodontia is suspected, and X-rays will be obtained to make sure there aren't any teeth in the gums that haven't fully developed yet.

Diagnosis

Anodontia is characterized by the total absence of dentinal development. A significant clinical characteristic of more than 50 disorders is hypodontia. Ectodermal dysplasias, dentoalveolar clefting, Trisomy 21 (Down syndrome),chondroectodermal dysplasia (Ellis-van Creveld syndrome), Rieger syndrome, Incontinentia pigmenti, orofacial-digital syndrome, William syndrome, and disorders involving craniosynostosis are a few of these. Anodontia is an uncommon disorder that suggests total tooth development failure. Anodontia can be identified using dental X-rays if either baby teeth or permanent teeth do not appear to be forming by the usual age. The X-

rays can be utilized to establish the lack of teeth in the gums together with a physical examination and inquiries about family dental history [14].

Treatment

Multidisciplinary planning should be used for treatment. The kid, the parents, and the child's growth should all be taken into account while making decisions. Early adolescence is a time of social adjustment as well as transitional changes in dentition, even though children will adjust to a variety of appliances and therapies during childhood. Perhaps now is the hardest moment to come up with a long-term strategy. Although teenagers are mainly concerned with appearance, it may be too early to offer permanent restorations; intensive orthodontic therapy or subsequent orthognathic surgery may be necessary [14].

Consanguinity does increase the likelihood that recessive traits or diseases will show, although the majority of those who are affected do not originate from inbred families. The creation of an overlay denture is commonly advised in this situation [15]. According to Witkop, who examined two families in which both parents had peg or missing maxillary lateral incisors, an autosomal dominant characteristic with variable expressivity and partial penetrance, agenesis of the permanent teeth may be an indication of the homozygous state of that gene. The implant phase starts five months after the bone transplants and is controlled by a sophisticated dental scanner linked to a radiologic guide. Often, that guide is a replica of the patient's prosthesis with radio-opaque markings [1, 2]. To validate the setup and turn it into an implant guide for the rehabilitation's aesthetics, a wax-up with altered teeth can be made.

CONCLUSION

Anodontia is an uncommon disorder that suggests total tooth development failure. Even though the absence of permanent teeth is frequently referred to be congenital, it is obvious that they would not be anticipated in the mouth cavity at birth [13]. Therefore, treating individuals with congenitally lacking teeth seems difficult. Although we consider implants to be the gold standard in many situations, each patient should be treated differently. It is necessary to schedule a long-term follow-up throughout the implant period. Precocious screening throughout childhood is the best way to begin managing the disease as soon as possible. To complete the various stages of rehabilitation, a multidisciplinary strategy involving a dental surgeon, prosthetist, maxillo-facial surgeon, orthodontist, and of course the patient, is required. In a conclusion, we must state that it is crucial to keep the patient motivated throughout the therapy and that the optimum outcome can only be obtained by extremely tight coordination between the various specialties [16].

ACKNOWLEDGMENTS : None

CONFLICT OF INTEREST : None

FINANCIAL SUPPORT : None

ETHICS STATEMENT : None

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