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Hypodontia and Anodontia in Children: Etiology, Genetic Factors, Clinical Features, Diagnosis, and Management

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Abstract

Tooth agenesis (hypodontia), when a limited number of teeth are missing, is among the more common developmental anomalies of the human dentition. It can present as an isolated, nonsyndromic condition or within a recognized genetic syndrome. When excluding third molars, the prevalence of hypodontia is found to generally range from ~1.6% to 6.9%, with a high variation according to the ethnic and demographic characteristics of the cohort examined. The majority of affected patients show agenesis of one or two teeth, with the maxillary lateral incisors and the mandibular premolars most commonly affected. Tooth agenesis is a multifactorial trait reflecting interaction between genetic predisposition and environmental factors, but it seems that genetic determinants have a predominant role. This condition has important clinical implications, especially in orthodontic management. Hypodontia, a relatively common developmental condition, may necessitate prolonged treatment and abnormal tooth absence/development can complicate space management and occlusal relationships in achieving stable aesthetic and functional outcomes. Better appreciation of the multiple genetic and environmental contributors to tooth agenesis may thus lead to better identification of people at risk earlier in life, which in turn could inform preventative and therapeutic strategies. Anodontia is the most severe type of tooth agenesis and consists of total lack of teeth. Anodontia, unlike tooth loss after eruption, is a congenital developmental disorder in which the individual fails to form teeth during odontogenesis. And one of them is that rare condition that may affect the primary or permanent dentition. Complete tooth agenesis is often found in syndromic forms, especially forms of

ectodermal dysplasia wherein other structures derived from the ectoderm become abnormal as well, such as hair (hypotrichosis), nails (onychodystrophy), skin (ichthyosis) and sweat glands.

Keywords: Hypodontia, Anodontia, Oligodontia, Tooth Agenesis

Introduction

Tooth agenesis, commonly referred to as hypodontia when a limited number of teeth are absent, is among the most frequently encountered developmental abnormalities of the human dentition. It may occur as an isolated non-syndromic trait or as part of a recognized hereditary syndrome (Duke et al., 2023; Candeiro et al., 2024). The condition results from disruption of

normal tooth development, leading to the congenital absence of one or more teeth. The extent and anatomical distribution of missing teeth can differ considerably among affected individuals (Meade & Dreyer, 2023). The clinical classification is based primarily on the number of absent teeth. Hypodontia generally denotes the absence of a limited number of teeth, whereas more extensive forms are termed oligodontia. Anodontia represents the most severe end of this spectrum and refers to complete absence of tooth development (Castilho et al., 2023; Meade & Dreyer, 2023). Consequently, the clinical presentation ranges from isolated absence of a single tooth to extensive agenesis involving numerous teeth (Figure 1). Among the permanent dentition, mandibular second premolars and maxillary lateral incisors are frequently affected, although the prevalence and distribution of missing teeth may differ across populations (Intarak et al., 2023).



Figure (1) Patient with congenital missing upper lateral (hypodontia).

Tooth agenesis is an important group of developmental abnormalities associated with the congenital absence of teeth. The absence of one or more teeth, excluding third molars, is referred to as hypodontia with adjacent states being oligodontia and anodontia for more extensive forms. Oligodontia refers to the congenital absence of multiple teeth (generally defined as six or more permanent teeth, excluding third molars) and anodontia is the complete lack of tooth formation (Nunn et al., 2003). The terms tooth agenesis and hypodontia are preferentially used in this context, with hypodontia referring to the absence of teeth except

the third molars. Anodontia, the most severe form of tooth agenesis and complete absence of primary/or/and permanent teeth respectively (Figure 2). It is an extremely rare developmental defect that occurs because the teeth do not form in the first place, rather than loss of a tooth afterwards. Anodontia can be a single entity; however, complete tooth absence is more commonly associated with inherited disorders, particularly ectodermal dysplasia. Ectodermal dysplasia may involve other ectoderm-derived structures as well, such as hair, nails, skin and sweat glands. (Ketz et al., 2020)

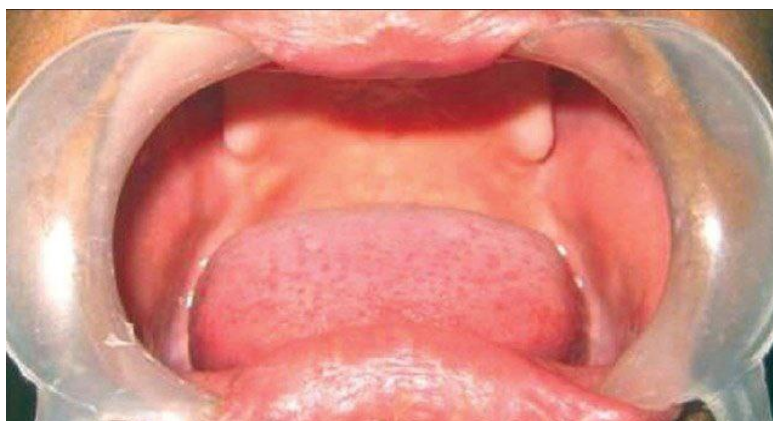


Figure (2) Patient with complete absence of teeth (anodontia)



2. Etiology of Hypodontia and Anodontia

2.1. Etiology of Hypodontia

Hypodontia can be inherited in a family; a relatively high proportion of patients with hypodontia are from families with a repeated occurrence of it. The genetic acquisition itself is so complex and poorly understood. Although hypodontia is determined by multiple factors where the environmental and genetic effects influence its etiology, it may sometimes occur in individuals with no family history. This developmental disruption may also result in an absence of teeth in the area due to the presence of palate and cleft lip involving the alveolus (Parmanand, 2002 ; Rohilla , 2017).

2.2. Etiology of Anodontia

At the molecular level, anodontia may arise from genetic alterations affecting the development of the dental lamina, the embryonic epithelial tissue responsible for initiating tooth formation. The genetic basis can vary according to the underlying condition, particularly when anodontia occurs as part of a hereditary syndrome. In some inherited forms, the disorder follows an autosomal recessive pattern, meaning that pathogenic variants must be inherited from both biological parents for the phenotype to become apparent (Ketz et al., 2020).

3. Prevalence of Hypodontia and Anodontia

3.1 Prevalence of Hypodontia

Its prevalence differs widely between populations and is associated with geographical origin, diagnostic criteria, age and

if the third molars have been included (table 1). In permanent teeth (excluding third molars), a meta-analysis and systematic review estimated the combined prevalence of hypodontia at approximately 6.4% (95% CI: 5.7–7.2%) with significant heterogeneity between geographical region. Prevalence was highest in African (13.4%) compared with European (7.0%), Asian (6.3%), Caribbean (4.4%), Australian (6.3%), North American (5.0%), and Latin American and populations (Al-Ani et al, 2017). There was a slight female preponderance, with females being more possibly to have hypodontia than males (OR = 1.22, 95% CI: 1.14–1.30), as shown in the same meta-analysis. Recent reviews reaffirm the still greater occurrence of tooth absence in the permanent than in the primary dentition and also the heterogeneity of the prevalence estimates, depending on the type of population and the diagnostic approaches (Meade & Dreyer, 2023). The missing teeth is also distributed followed a more or likewise simple pattern. Mandibular second premolars seem to be the most absent permanent teeth followed closely by maxillary second premolars and maxillary lateral incisors and (Al-Ani et al., 2017; Intarak et al., 2023). Nevertheless, the relative abundance of particular teeth can vary between groups. Moreover, hypodontia usually occurs in more than one tooth but most of the patients with hypodontia have slight degree of tooth agenesis. For the systematic review by Al-Ani et al. (2017) recorded that mild hypodontia represented around 81.6% of the cases, while moderate and severe forms represented 14.3% and 3.1%, respectively. Current genetic investigations have again shown that SNPs located in genes associated with tooth development, including PAX9, contribute to several phenotypes with different patterns and severities of tooth agenesis (Intarak et al., 2023).

Table 1. Frequency and Sex Distribution of Hypodontia in Primary and Permanent Dentitions

Dentition	Reported Frequency	Male: Female ratio	Commonly affected teeth
Primary Teeth	0.1–0.7%	Unknown	—
Permanent Teeth*	2–9%	1 : 1.4	Third molars > maxillary lateral incisors > second premolars > mandibular central incisors

*Prevalence values for permanent teeth may vary according to whether third molars are included and according to the population studied

3.2. Prevalence of Anodontia

Anodontia is a rare developmental dental anomaly and not well defined in population prevalence. It is the absence of all teeth and is much rarer than partial tooth agenesis. Based on observed estimates, complete absence of permanent teeth is very rare and complete absence of primary teeth was also low.

Existing evidences do not support a constant relation of anodontia with sex and/or race (Vahid et al., 2010).

4. Features Associated with Hypodontia and Anodontia

4.1. Features Associated with Hypodontia

Tooth agenesis may occur as an isolated, non-syndromic developmental anomaly, but can also be associated with oral clefts or part of many hereditary syndromes (Arte 2001; Nieminen 2009). Hypodontia is more common with more extensive forms of cleft lip and/or palate. Congenital agenesis of the maxillary lateral incisors is seen in both the primary and permanent dentitions (Arte, 2001; Nieminen, 2009). Hypodontia can also be a manifestation of diseases including Down syndrome and ectodermal dysplasia (an abnormal genetic disorder). Moreover, genetic and molecular analyses have proved possible connections between signaling pathways involved in tooth morphogenesis or development and those activated in some of the cancers, but whether these poor correlations reflect a true mechanistic relationship or a clinical significance are still being investigated (Küchler et al., 2013). The extent to which those with hypodontia have more uniform or characteristic skeletal features or whether craniofacial growth patterns are distinctive is unknown. However, other individuals studying it found that there were differences in the craniofacial morphology of those two groups in someone with hypodontia compared to someone with a complete dentition (Hobkirk et al., 2011).

4.2. Dental Features

Microdontia is a widely known manifestation of tooth agenesis and can involve one or more teeth in either dentition. Tooth agenesis has also been shown to be largely correlated with incipient microdontia, especially of the maxillary lateral incisors (Küchler et al., 2017; Meade & Dreyer, 2023; Ribeiro et al., 2025). Additionally, common developmental and genetic mechanisms relating hypodontia to tooth size and tooth number were also evidenced (Duke et al. 2023). Another area of

common finding is delayed tooth development, more so when there is no permanent successor. In these cases, the primary tooth can stay in the arch for extended periods since normal exfoliation is delayed (Patel et al. Tooth agenesis is also linked to other dental malformations such as short roots, enamel hypoplasia, microdontia or peg-shaped infraocclusion of primary molars, maxillary lateral incisors, ectopic eruption and unusual tooth angulation (Meade & Dreyer, 2023; Ribeiro et al., 2025). Adjacent teeth are spaced and/or rotated relative to the missing tooth, especially for conditions where mandibles second premolars are involved. In summary, these associated syndromes provide support for the idea that tooth number, size, morphology, eruption and root development link together by shared and developmental and/or genetic mechanisms (Duke et al., 2023; Ribeiro et al., 2025).

4.3. Skeletal Features

Hypodontia patients suggest a lower mandibular plane angles, lip protrusion and lower anterior face heights (Chung et al., 2000). Patients with hypodontia also exhibit a reduced anteroposterior dimension of the maxilla and mandible; a skeletal Class III growth pattern. Moreover, the presence of reduced lower facial height and a relatively large interocclusal (freeway) space is likely associated with a more closed mandibular posture that produces an overclosed appearance (Hobkirk et al., 2011). Earlier reports delineated hypodontia children are characterized by upper arch being shorter in length and more retracted with proclined upper incisors Figure (3) However, when the children were re-evaluated in a different study, the authors noted that no changes were observed in the craniofacial structures, from 9 to 16 years of age; of children with hypodontia from those without (Al-Ani et al., 2017).

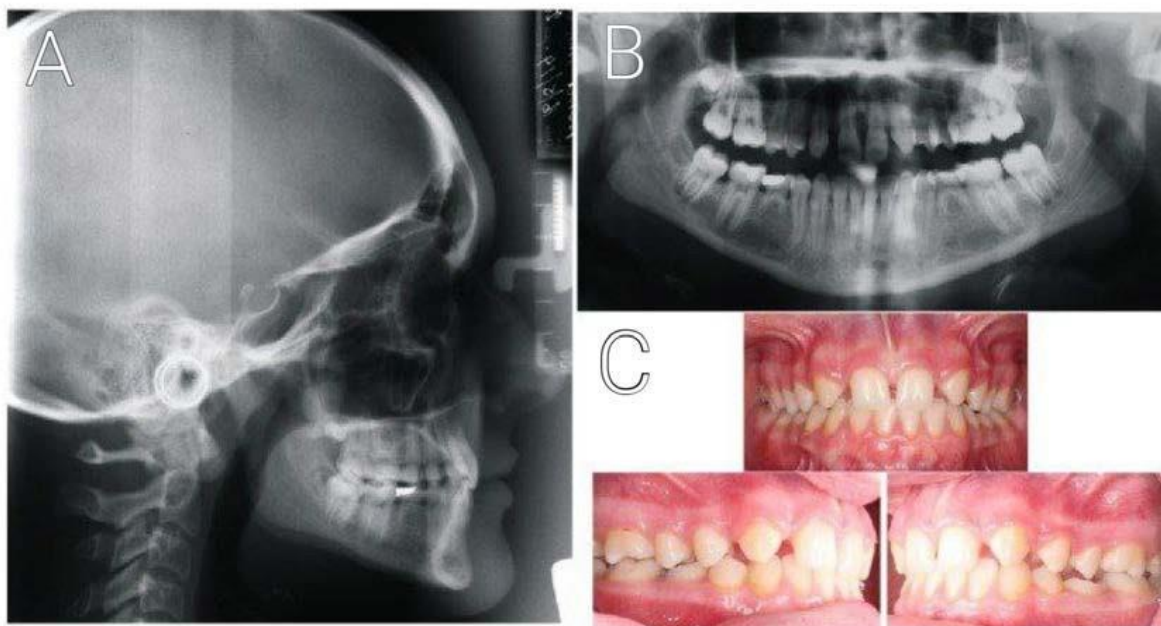


Figure (3). A patient demonstrating several characteristic dental manifestations of hypodontia. (A) Cephalometric radiograph; (B) panoramic radiograph; and (C) intraoral clinical photograph. The images demonstrate congenital absence of the maxillary lateral incisors and second premolars, persistence of the primary mandibular molars, generalized interdental spacing, and an increased vertical overlap of the anterior teeth (Al-Ani et al.,2017)

4.4. Features Associated with Anodontia

In the absence of tooth eruption or evidence of permanent teeth formation by around 12 years of age careful consideration of the diagnosis of anodontia for children with early tooth loss is warranted. In cases of more severe presentation, absent primary dentition may be apparent during infancy, with the absence of any primary teeth through 12 – 13 months of age. Other symptoms may consist of hair loss, low or absent sweating from insufficient sweat glands, cleft lip and/or palate, and irregularities or absence of the fingernails. Those extraoral findings are often detected whenever anodontia is present with ectodermal dysplasia, and a hereditary disorder in which there are structural abnormalities of the ectoderm. In rare situations of complete absence of teeth, not associated with features of ectodermal dysplasia, the condition can be due to a genetic mutation not yet identified (Meade & Dreyer, 2023).

4.5. Syndromes Associated with Anodontia and Hypodontia

Hypodontia and anodontia can be found as components of numerous genetic disorders and syndromes, particularly ectodermal dysplastic syndromes. Total anodontia is very uncommon and is typically seen in combinations with severe types of ectodermal dysplasia and other congenital malformations. A number of syndromic conditions linked to severe tooth agenesis have been reported including ectodermal dysplasia, Rieger syndrome, focal dermal hypoplasia, and other craniofacial developmental disorders. It can manifest itself, in mild, moderate to severe forms, as syndromic hypodontia, oligodontia or, in the most severe cases, almost complete agnesia of teeth, sometimes determining associated ectodermal dysplasia (anarthrogenic ectodermal dysplasia, a rare genetic conditional syndrome) consisting of abnormalities of sweat glands, nails and hair (Bhakta et al., 2019). Other clinical features may be hair loss or thinning, reduced or absent sweating, cleft lip and/or palate, and nail defects. Depending on the underlying genetic disorder a specific dental phenotype is apparent, ranging from isolated mild hypodontia to extensive oligodontia and rarely anodontia Figure (4), Figure (5). (Savasta et al.,2017).



Figure (4) A male child with X-linked hypohidrotic ectodermal dysplasia and a dental prosthesis, showing characteristic periorbital skin changes, including dryness, wrinkling, and pigmentation



Figure (5) A male child with ectodermal dysplasia characterized by several missing teeth and small, malformed teeth

5. Effect of hypodontia and anodontia on oral and overall health

Several studies and research reports have highlighted anodontia and hypodontia to have increased prevalence, etiology and treatment, and the resultant dentoskeletal effect associated with these anomalies has supported some evidence that both dentition lackings have an effect on patients' quality of care (Emma and Laing, 2010). These abnormalities can also affect the speech, muscle aesthetics and their functions as well as the quality of the musculature in the mouth (Meaney et al., 2011).

Missing teeth can lead to a variety of health issues, such as:

1. Difficulty chewing and swallowing

Impaired masticatory function may adversely affect digestive health. can cause heartburn, indigestion, not absorbing essential nutrients, eating too much (Al-Ani et al. ,2017).

2. Lowered self-esteem

The importance of Cosmetic dentistry is rising and is being pointed out increasingly more in present day life. The dentofacial appearance can influence the perceived personality traits and interpersonal relationships (Popularity, social class, friendliness, and intelligence). Several studies have demonstrated that severity of disease as well as number of permanently lost teeth were correlated with the magnitude of complaints (Emma and Laing, 2010). Attractive children have also been shown to be regarded and treated as smarter, and more prosocial in their behaviour and characteristics, theoretical reviews and meta-analyses have shown this to lead to significantly more positive treatment of them in comparison

with their lower attraction counterparts. Therefore, deviation from the perceived ideals of dentofacial harmony, especially in childhood may affect self-confidence and self-esteem, in addition to being a subject of ridicule from peers (Shaw et al.,1991). It seems logical to suggest that any departure from ideal dentofacial aesthetic and/or normal or could be damaging to an individual's emotional and psychosocial health to the extent that the individual suffers some psychosocial distress from their condition (Emma and Laing , 2010).

3. Altered bite

The clinical presentations of the patients with congenital tooth absence are constant relationships for dental occlusal alteration which results in vertical overlap and interdental space. Loss of posterior tooth segments may magnify the vertical overlap. Further occlusal and periodontal changing can range from early contacts occurring in mandibular movements, abnormality in gingival architecture, and over eruption of opposing dentition. Moreover, reduced number and size of functioning tooth surfaces could diminish effective chewing area; possibly contribute to making masticatory and other oral functions more difficult in individuals with hypodontia.

(Borzabadi ,2012 ; Al-Ani et al.,2017).

4. Bone loss or deterioration

inadequate jawbone growth because growth of alveolar processes that accompanies the eruption of the primary dentitions, followed by permanent dentitions otherwise, there is no stimulation of the bone by the teeth to grow. This deficiency in bone development could turn your jaw seems small (Yap et al., 2009).



5. Financial Impaction

Management of hypodontia requires individualized and carefully coordinated treatment planning because of the functional, orthodontic, and aesthetic complexities associated with the condition. Achieving an optimal outcome often necessitates collaboration among several dental specialties, such as orthodontics, restorative dentistry, and prosthodontics. Consequently, the prolonged and multidisciplinary nature of treatment may impose a considerable financial burden on patients and, particularly in younger individuals, their families (Hobkirk et al., 2011).

1. **Abnormal speaking patterns.**
2. **Weakened jaw muscles and structure.**
3. **Gum Damage.** (Ceyhan et al., 2014).

6. Diagnosis of hypodontia and anodontia

The diagnosis of anodontia can be made if a child does not start to formulate teeth in twelve to thirteen months or when a by the age of permanent teeth Child does not grow his/her teeth. Take special X-rays, like a panoramic imaging, to see if teeth are growing. A child is also more likely to have anodontia if their parents have the illness as well. Anodontia will be diagnosed in the complete absence of all permanent teeth. Hypodontia — If one to five teeth are missing. Hypodontia is defines as lacking one teeth or more in a patient mouth. A dentist will examine for other signs of hypodontia during an exam — small teeth, peg-shaped teeth. and distance between the teeth identifying mutations in 560 known and candidate genes involved in oral dental syndromes using genetic testing (Salinas et al., 2005)

7. Treatment of Hypodontia and Anodontia

7.1 The aim of treatment

The main objectives of treatment are the recreation of sufficiently normal oral function and aesthetics, the retention of the vertical dimension and the function of the teeth and the whole craniofacial development. Management ought to be multidisciplinary and patient-centred with consideration to current and future needs, growth and development, and expectations of both the patient and parents. Management of severe hypodontia or anodontia is multidisciplinary in nature and often warrants a coordinated opinion from pediatric dentistry, orthodontics, prosthodontics, and oral surgery (Meade & Dreyer, 2023; Dolan et al., 2023). The treatment will vary based on how many teeth are missing, where the teeth are located, occlusion, growth of the face, space available, the condition of adjacent teeth, and alveolar bone, age and patient need or desire (Meade & Dreyer, 2023; Dolan et al., 2023). Conclusion Tooth auto-

transplantation is an unprecedented option for growing patients if a donor tooth is appropriately available. An auto-transplanted tooth, unlike implants, has a periodontal ligament (PDL) and can thus serve as a stimulus for the maintaining and developing of the surrounding alveolar bone. Recent systematic reviews have shown that long-term survival of teeth is favorable, particularly in the selection and application and transplantation of teeth with incomplete root formation (Tan et al., 2023; Wang et al., 2022). However, since they potentially face positional mismatching of the implant and nearby natural teeth with advocated continuation of craniofacial and alveolar development, implants in growing patients are of particular interest (Cherian et al., 2023; Oliveira et al., 2024).

7.2 Considerations before treatment's determine

Several parameters should be carefully monitored before making decision on an adequate therapy for patients with hypodontia. This consists of: total number of missing teeth, number and size of the rest teeth in both arches (Rakhshan 2015). In addition to malocclusion presence/severity and the profile of the patient, the quantity of available bone should also be determined (Rakhshan, 2015; Hvaring et al., 2014). Another variable to account for is age, as definitive treatment of hypodontia usually starts after the eruption of all permanent teeth, or after the end of orthodontic treatment (Hvaring et al., 2014; Valle et al., 2011). Other factors that should be taken into account when developing an individualized treatment plan are the condition of the primary dentition and the motivation and eagerness of the patient to undergo treatment (Hvaring et al., 2014).

7.3 Treatment options:

7.3.1 Partial or complete dentures.

Removable partial dentures are commonly used as temporary restorations in growing patients when definitive fixed prostheses are not yet appropriate. They provide functional and aesthetic rehabilitation while maintaining the edentulous space by preventing migration of adjacent teeth and overeruption of opposing teeth. They also help preserve the occlusal relationship and facial height during growth (figure 6). They can also be accessible to add to or modify in case of additional tooth eruption. But the bulkiness of removable dentures can make it tough for younger people to comply. Also, some patients feel that the idea of dentures is socially unacceptable and functionally and so will not comply. Because the removable prosthetic devices destroy the rest of the teeth when used for a long time as well. According to the complete dentures are removable restorative devices that can replace missing teeth and restores the action of chewing and speaking (Figure 7). They sit on your gums for support. Use a dental

cement to help them to stay put. Conventional dentures replace missing teeth for children and adults with anodontia (Jepson et al., 2003)



Figure (6) Dentures for young children with ectodermal dysplasia.

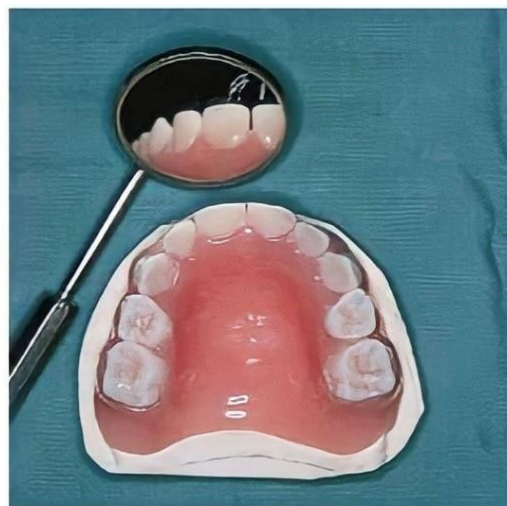


Figure (7) A full upper denture.

7. 3. 2 Orthodontic management of spaces.

A / Orthodontic space closure:

Orthodontic space closure is a well-established means of treating congenitally missing teeth through the closure of spaces associated with hypodontia and the relocation of the remaining dentition into a relayed and more pleasing arrangement. It is important to recognize that while comprehensive orthodontic treatment is undertaken commonly in early adolescence, the treatment plan should involve a multidisciplinary approach based on age, the number and clinical severity of missing teeth, expected treatment outcomes, aesthetic demands, and reasonable expectations for compliance. In absence of maxillary lateral incisors, closure usually means orthodontic mesialization of the adjacent canine into the edentulous region, and appropriate reshaping of the canine to approximate the morphology of a lateral incisor (Kiliaridis et al., 2016).

This method might be especially suitable for patients having a Class I molar relationship and pronounced mandibular anterior crowding in that extraction of mandibular premolars can make orthodontic treatment results more predictable. Class II with no severe mandibular anterior crowding and slight protrusion of the mandibular incisors is also indicated for this approach (Kiliaridis et al., 2016). Although the importance of orthodontic management in improving dental function and aesthetics is generally agreed upon (Kinzer & Kokich, 2005; Rosa & Zachrisson, 2001), for such treatment to be successful in adolescents, psychological aspects should also be considered, particularly where treatment results in changes accessible to the patient (i.e., where the dental appearance is noticeable to others or requires a prolonged treatment period). Because of the markedly different crown morphology, dimensions, root anatomy, and gingival architecture between a replacement canine and its missing maxillary lateral incisor, use of a canine to replace this missing anterior tooth demands meticulous



multidisciplinary planning. Therefore, just transferring the canine into the lateral-incisor position may not yield a satisfactory esthetic result. Thus, tooth reshaping, enamel recontouring, and proper gingival contour management may be needed to alter the canine to a more natural lateral-incisor form (Addy et al., 2006).

If the canine is being used to replace a missing lateral incisor, significant crown reshaping may be needed to provide an anterior tooth form. Selective reduction of the mesial and distal surfaces will help to reduce the apparent width of the canine, while reduction of labial surface contour can attenuate the great convexity of the cusp and create a morphology more representative of a lateral incisor. On the other hand, too much reduction of the enamel structure should be performed because deeper dentin is accessed, which matches the underlying structure is darker. If such exposure occurs, it may require adjunctive restorative procedures. When deemed necessary, adjustment of the palatal surface can also be carried out to decrease excessive bulk and refine the overall anatomical form of the reshaped canine (Addy et al., 2006).

Composite resin bonding is a minimally invasive technique for changing canine morphology, while porcelain veneers can also realise aesthetic goals but with increased cost, treatment time and increased laboratory work. Great evidence has appeared for orthodontic space closure that may be a human-specific solution for patients with congenitally missing maxillary lateral incisors compared with prosthetic replacement (Zachrisson et al., 2011). The most important benefit is that treatment is largely complete while the patient is still an adolescent so that the patient can attain a stable arrangement of teeth without the need for definitive prosthodontic replacement at a later date. The presence of closed space also means that this space does not require prosthetic replacement of the missing tooth and thereby removes the economic burden, maintenance, and potential biological and/or mechanical complications from a loss of a tooth. Statically, judicious replacement of lost canine for congenitally missing lateral incisor most often affords a natural appearing dentition, not obviously deficient in congenitally missing teeth (Kiliaridis et al., 2016). Here are a few decision factors in determining whether the space closure is warranted. Such variables include gingival contour and height, color of teeth, size and dimensions of clay and facial profile (Kinzer and Kokich 2005; Kiliaridis et al., 2016).

B /Orthodontic space opening prior to prosthodontic treatment:

The decision to create orthodontic space before prosthetic replacement of missing teeth should take into account the dimensions of the edentulous area, the size and position of adjacent teeth, the existing occlusal relationship, and the patient's

aesthetic requirements (Kiliaridis et al., 2016). Several approaches have been proposed for determining the appropriate space dimension, including the golden proportion, Bolton tooth-size analysis, and comparison of the available edentulous space with the corresponding tooth on the unaffected contralateral side when such a reference is available (Kinzer & Kokich, 2005). In patients with a Class I molar relationship, preservation or establishment of the canine relationship may be advantageous when prosthetic replacement is planned, particularly when the facial profile is relatively prominent or convex. Conversely, in patients presenting with a Class III molar relationship and a characteristically concave facial profile, space opening followed by prosthetic rehabilitation may also represent an appropriate treatment strategy (Kiliaridis et al., 2016). Nevertheless, orthodontic space opening can temporarily alter dental appearance, particularly when spaces or diastemas are intentionally created to facilitate subsequent prosthetic replacement. Although these aesthetic changes are generally intended to be temporary until definitive restoration is completed, they may influence adolescents' perceptions of their appearance and consequently affect their oral health-related quality of life (Filius et al., 2016).

7. 3. 3 Conventional crown and bridgework

Removal prostheses are usually not the first line in the management of hypodontia and fixed restorative options are usually recommended after maintainable options. Resin-bonded bridges (RBBs) involve very little tooth preparation and can offer a definitive restoration for 1 or 2 edentulous spaces making them ideal for young adults (Jepson et al., 2003). Some authors have reported a survival rate of about 80% with evaluation of two suspected cantilever resin-bonded bridges for at least six years or more and a cantilever resin-bonded bridge gave outcomes equivalent to or even better than other types of structures with traditional fixed-fixed bridges. This restorative treatment, however, is typically conducted after the orthodontic treatment is completed and relies on proper retention to keep the teeth in the desired position while avoiding unwanted tooth movement and contact dislocation. Conventional bridges are only an option when the adjacent teeth have also been restored with extensive restorations, hence their use is more common in adults with hypodontia (Jepson et al., 2003). Yet traditional bridgework often depends on the excessive chemical reduction of supporting tooth material, which may predispose the prosthetic to biological threat, especially loss of pulpal vitality (Filius et al., 2016; Valle et al., 2011). This risk becomes more significant for younger patients since they typically have larger pulp chambers, which increases the risk of pulpal damage from intensive tooth preparation (Valle et al., 2011).

7. 3. 4 Osseo-integrated implants (usually after the cessation of growth).



The addition of dental implantations has been confirmed to be a predicted and successful manner of prosthetic treatment for hypodontic state whilst yielding attractive benefits. Implant placement must be postponed till the individual finishing jaw development (Rakhshan, 2015). The only limit of placing the implant would be if there is enough bone volume, otherwise the position of the implant could be compromised. However, this can be supplemented with bone grafting (Valle, 2011)

Conclusion

Hypodontia represents the most frequently encountered developmental anomaly affecting the human dentition and craniofacial region. It may occur as an isolated dental condition without an identifiable syndrome or as one manifestation of a broader hereditary disorder. The teeth most commonly absent in affected individuals are the mandibular second premolars and the maxillary lateral incisors. Although the extent to which hypodontia is associated with characteristic skeletal morphology or altered patterns of craniofacial growth remains unclear, a range of dental abnormalities has been reported in conjunction with the condition. These include reduced tooth size (microdontia), tooth transposition, abnormal or ectopic eruption pathways of permanent teeth, and infraocclusion of retained primary molars. Genetic factors appear to play a more important role than environmental ones when examining the etiology of hypodontia based on current evidence. Apart from its oral manifestations, hypodontia could impair aesthetic appearance, oral function and psychosocial well-being, and cause a significant financial burden because of long-term multidisciplinary management. Conversely, anodontia is an uncommon developmental disorder associated with total absence of tooth development. It is frequently linked with genetic abnormalities, notably ectodermal dysplasia, a set of genetic diseases which can influence the growth of teeth and other ectodermal tissues. The actual genetic procedure controlling anodontia has not been fully expounded but is viewed as created with an interruption of genes responsible for the development of teeth. Discrepancies in an individual's moving age, condition of the mouth, and their necessity this sort of would all be able to impact what program of "treatment" you will be so nurtured You manageable status that is exceptionally charming. Gentle treatment could enhance mastication and talking, improve oral and facial function, restore facial appearance, improve self-esteem, and had countered the secondary oral compromised affiliated with missing teeth.

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