



Esthetics by Prosthesis in an ED Child

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Abstract

Ectodermal dysplasia (ED) is a genetically heterogeneous condition resulting from clinical anomalies of structures derived from the ectoderm, such as hair, nails, sweat glands, and teeth. Such children often affected with esthetics, mastication, speech and social integration. The aim of this case report is to describe the prosthetic rehabilitation of a child of hypohidrotic ectodermal dysplasia (ED) with maxillary and mandibular dentures. In conclusion, the prosthetic management is a noninvasive procedure, reversible, cost-effective, viable, and efficient treatment for a child with hypodontia to restore esthetics, function and to satisfy the child.

Keywords: Ectodermal Dysplasia; Esthetics; Prosthetic Rehabilitation

Abbreviations

ED: Ectodermal Dysplasia; HED/EDA: Hypohidrotic, or Anhidrotic, Ectodermal Dysplasia

Introduction

The ectodermal dysplasias (EDs) are a large and complex nosological group of diseases, first described by Thurnam in 1848 [1].

Hypohidrotic, or anhidrotic, ectodermal dysplasia (HED/EDA) is characterized by a triad of signs comprising sparse hair (hypotrichosis), abnormal or missing teeth (anodontia or hypodontia), and inability to sweat (anhidrosis or hypohidrosis) [2]. The clinical signs of EDA include dryness of the skin, hypoplastic midface, sparse, fine, slowly growing scalp hair, sparse eyebrows and eyelashes [3].

The congenital absence of teeth results from disturbances during the initial stages of tooth formation: Initiation and proliferation. Missing teeth may occur in isolation or as part of a syndrome. Isolated cases of missing teeth can be familial or sporadic. Familial tooth agenesis is transmitted as an autosomal dominant, autosomal recessive, or X-linked genetic condition [2]. Hypodontia, a commonly used term to describe the absence of one to six teeth, is one of the most common dental developmental anomalies in human. The absence of more than six teeth is called oligodontia [4].

The purpose of management of dentition by providing dentures is to satisfy the child to feel comfortable like other healthy children. Proper sequence of treatment is essential to achieve the desired functional and esthetic results.

Aim of the Study

The aim of this case report is to describe the prosthetic rehabilitation of a child of hypohidrotic ectodermal dysplasia (ED) with maxillary and mandibular dentures.

Case Report

A 11-year-old boy child with his father referred to the clinic representing multiple missing teeth as a chief complaint. On general case history, the child was born by full term normal delivery. There was no history of birth injury.

On general examination, the patient presented with triad of hypohidrosis, hypotrichosis and oligodontia. On extraoral examination the lower third of the face was decreased in height. No other systemic disease was observed. Family history revealed no similar significant findings in his parents or sibling. Intraoral examination of the patient revealed unerupted 11, 12, 21, 22, 31, 32, 41, 42 and all first premolars with overlying thickened fibrous tissue (Figure 1). 85 was grossly decayed and mobile.



Figure 1: Intraoral view of 11 year old boy with hypohidrotic ectodermal dysplasia.

The orthopantomogram revealed the absence of multiple teeth in maxillary and mandibular arch and there are no underlying toothbuds (Figure 2).



Figure 2: Panoramic radiograph showing multiple congenitally missing teeth.

Treatment plan was done to extract 85 and to fabricate removable partial dentures in maxillary and mandibular arches. Treatment plan was explained and extraction of 85 was done by giving local anesthesia on first visit as the child was having pain. On subsequent visits, an impression was taken using alginate to prepare cast models. Special tray was fabricated over primary cast, border molding and final impression was made with light body elastomeric impression material (Figure 3).



Figure 3: Border molding and final impression.

Impressions were poured with dental stone followed by fabrication of denture base and occlusal rims. Jaw relation was recorded using face bow and transferred on to semi-adjustable articulator and teeth were arranged. Esthetics and occlusion was verified by using trial dentures.

At the insertion of dentures (Figure 4), both the patient and his father were instructed regarding placement, removal, and oral hygiene. Both the family and the child noticed the new appearance and satisfied about prosthesis which creates impact on esthetics.



Figure 4: Profile view after placing maxillary and mandibular removable partial dentures.

Discussion

The features of EDA are frontal bossing, prominent supraorbital ridge, saddle nose, ‘dished-in’ appearance of midface, broad and high cheek bones, pointed chin and everted lips [3]. In this case, the child has sparse hair, everted lips and decreased lower facial height.

According to Bolk’s theory of terminal reduction, reduction of the distal element of a tooth group occurs more often than in mesially placed teeth due to the phylogenetic evolution of humans. Therefore, the teeth most often missing are the second premolars, the maxillary lateral incisors, and the third molars [5]. In this case, the child had missing incisors in both maxillary and mandibular arch.

According to the study done by Sajjid A., *et al.* the prevalence of hypodontia in a target population of Al-Jouf province was 6.1%. The most commonly missing teeth were mandibular second premolars, followed by maxillary lateral incisors. The majority of affected individuals had one or two missing teeth. None of the patients examined had more than four missing teeth. There were no significant differences in the distribution of hypodontia between the affected jaws according to gender [6]. In this case, the child had multiple congenitally missing teeth. Management of ED child by providing dentures is necessary to prevent social problems and to improve esthetics.

It also has been suggested that dental and maxillo-facial skeletal maturity, excellent oral hygiene is crucial to the successful treatment of these patients. The patients should use topical fluoride daily for prophylaxis against caries [7].

The most common treatment plan is removable prosthesis. Implant-supported denture is also suggested as the ideal reconstruction modality for adolescents over 12 years. Early implant placement in a growing child may cause cosmetic problems because implants act similar to ankylosed teeth. Along with the craniofacial growth, implant over-structures may not be in occlusion with opposite teeth and even the adjacent teeth may tilt into the space. Thus implant supported prosthesis may be less favorable, and therefore, the use of implants in young children should be considered carefully [8].

Conclusion

Management of edentulous children with removable partial dentures is a noninvasive, cost-effective, viable, and efficient treatment to satisfy the child and to restore esthetics, function and speech. However, regular follow-up and proper oral hygiene is necessary for successful outcome.

Conflict of Interest

None.

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