International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Case Report

Prosthodontic Management of Ectodermal Dysplasia in 5 Year Old Child: A Case Report

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Received: 14/10/2015 *Revised: 15/12/2015* *Accepted: 17/12/2015*

ABSTRACT

The management of the patients with ectodermal dysplasia has always been a challenge for clinicians because of very thin alveolar ridges and complete or partial anodontia. Dental management of patient with ectodermal dysplasia is multidisciplinary team approach. Implants and fixed partial dentures cannot be given in a child as it can obstruct the craniofacial growth. This clinical report describes the prosthodontic management of patient affected with ectodermal dysplasia.

Keywords: Anhidrotic, Ectodermal Dysplasia, Complete Denture.

INTRODUCTION

Ectodermal dysplasia (ED) is a hereditary dysplasia of one or more ectodermal structures, which was first described by Thurman. [1] At present there are around 170 types of ectodermal dysplasia; hidrotic ectodermal dysplasia and hypohidrotic ectodermal dysplasia are the two main groups. [2]

Hypohidrotic is also called anhidrotic ectodermal dysplasia or Christ-Siemens-Touraine Syndrome, hidrotic ectodermal dysplasia is also known as Clouston's syndrome. [1] Major difference in these two types is sweat gland manifestation, hypohidrotic ectodermal dysplasia (HED) show drastic reduction in the number of sweat gland or it may have defective sweat glands. [3] The clinical features associated with Ectodermal dysplasia most commonly consists of onchodysplasia, alopecia or hypotrichosis, hypohidrosis and hypodontia. [4] The present case report describes the prosthetic management of a patient with anhidrotic ectodermal dysplasia.

CASE REPORT

A 5 years old male reported to our department with a chief complaint of lack of teeth and difficulty in chewing. On clinical examination patient having dry skin with absence of sweat glands. History reveals he was intolerable to withstand hot environment. On Extra oral examination, Patient had scanty eyebrows and eyelashes along with frontal bossing and a saddle nose, everted lips due to long standing edentulous status and patient profile showed concave (figure1-3). On Intra oral examination shows dry mouth and completely edentulous Mandibular arch, conical shaped maxillary left central incisor, one molar right and left side of arch (figure 4, 5). OPG (figure 6) reveals that absence of tooth buds in mandibular

arch, and in maxillary arch deciduous left central incisor, right and left second molars were present equidistantly one on either side of the arch. Crown and root proportion seems to be normal for deciduous molars. Tooth buds of deciduous right and left canine and right central incisor was present. Upon thorough examination the patient was diagnosed with anhidrotic ectodermal dysplasia.

Treatment plan: Prosthodontic treatment included to improve the esthetics, mastication, speech. Since the child was still in the growing age and the treatment included to provide complete denture in the mandibular arch and over denture in the maxillary arch by taking support of two deciduous molars.

Fig 1. Pre-operative

Fig 2. Extra oral, Head

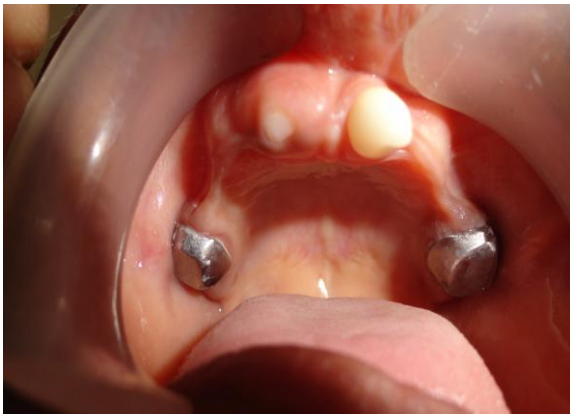

Fig 3. Intra oral

Fig -4. Maxillary central incisor, 21

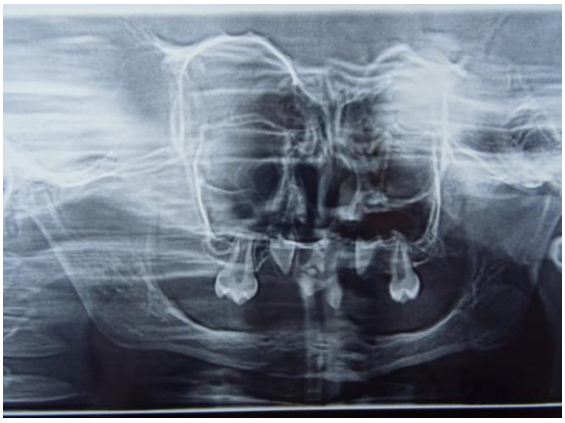

Fig 5. OPG

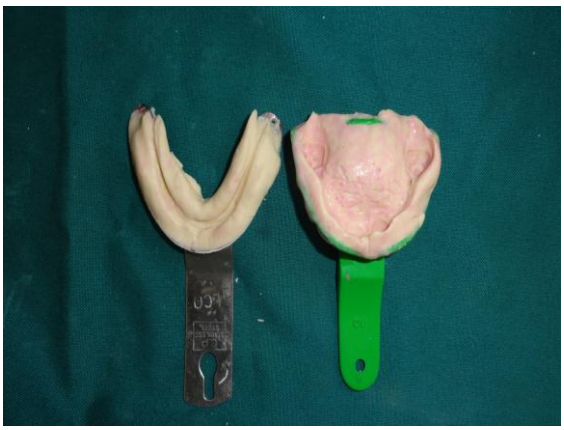

Fig 6. Diagnostic impression

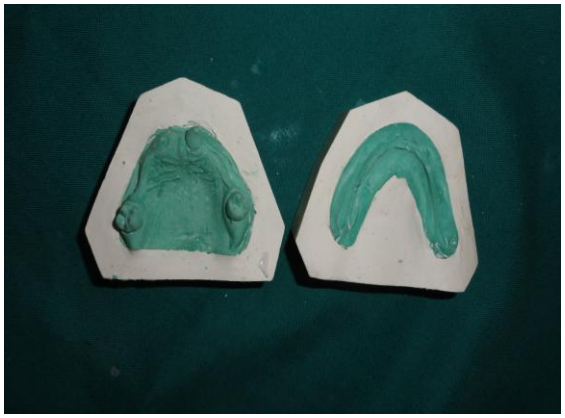

Fig 7.U/L diagnostic casts

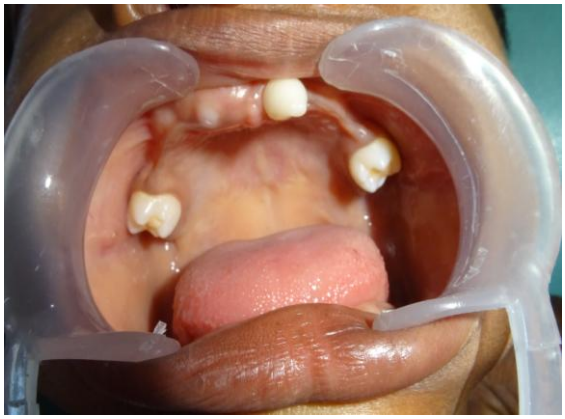

Fig 8. cast copings

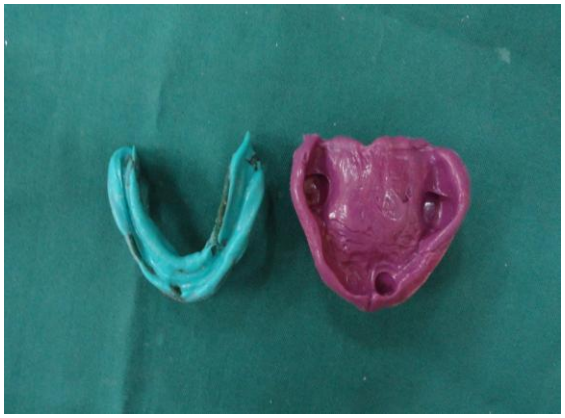

Fig 9.U/L master impression

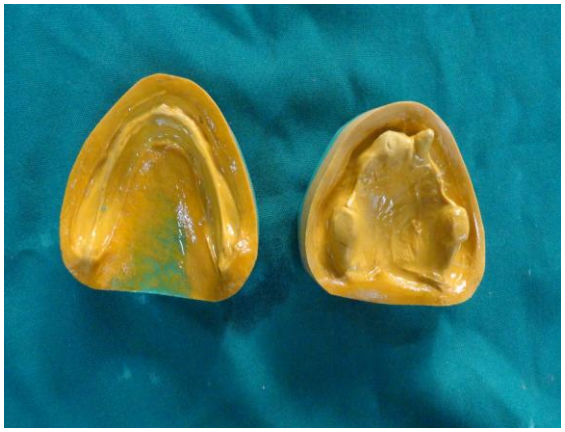

Fig 10. U/L master cast

Fig 11. Completed prosthesis

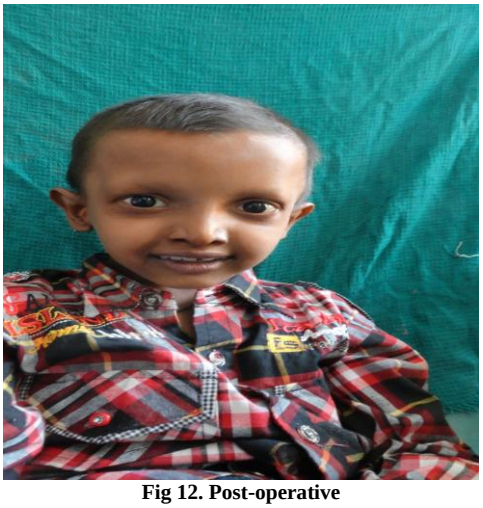

Fig 12. Post-operative

Procedure

- Diagnostic impressions were made in irreversible hydrocolloid impression material and impression poured with type III gypsum product (figure7,8). Also Diagnostic jaw relations were done to check the amount of interarch space and the ridge relation.
- Crown preparation done in both upper molars and impression made with irreversible hydrocolloid material and impression poured with type IV gypsum product. Wax pattern were tried on the cast and all coping patterns cast and metal copings were cemented on both molars (figure 9).
- Acrylic custom trays with wax Spacers were fabricated and border molding with low fusing compound and master impression

with light body poly vinyl siloxane impression material (aquasil)for lower arch. For upper arch master impression made with medium body (aquasil) Impression material and impression poured with type III gypsum product (figure 10).

- Temporary acrylic record bases were fabricated on the master casts and wax rims were fabricated. The maxillo-mandibular relationship was recorded conventionally, after assessing the phonetics and esthetics using Silverman's closet speaking space technique.
- A deciduous teeth mold (Nissin, Japan) was selected after calculating the inter-canine distance and teeth were arranged accordingly.
- After try –in, the waxed-up dentures were processed in heat-polymerizing acrylic resin (Lucitone, Dentsply) in a conventional manner, then the dentures were delivered (figure 11).
- Using direct composite resin, conical shaped incisor restored to normal contour (figure 12).
- Recall appointments were scheduled for 24 hours, 72 hours, 1 week, 3 weeks and every 3 months. Written oral hygiene instructions were given and explained to the patient.

DISCUSSION

Prosthodontic management of a young patient with ectodermal dysplasia will have positive effect, as ability to look and feel like one's peer is essential for psychological development of the child. [5] According to Hickey Cosmetic and prosthodontic treatment should be started by the age of 4-5 years to help the child look like peer. Prosthodontic treatment can be initiated at the early age of 2-3years if the child is co-operative. [6] Early prosthodontic treatment enhances Masticatory muscles tonicity; delays alveolar bone resorption associated with the absence of teeth, compensates for the decrease in vertical dimension and prevents angular cheilities. [7]

Conventional removable prosthesis will be the best options for the young patients with ectodermal dysplasia as they require repeated change of prosthesis as the patients grow. [8] But the over-denture is advantageous as it helps in preserving the alveolar ridge for future implant placement and utilizes the natural undercuts in the teeth for retention. [8] Yap and Kleinberg found that implants placed in ectodermal dysplasia patients below the age of 18 years had a higher failure risk and implants placed in adolescent patients with ectodermal dysplasia did not show significant effect on craniofacial growth. [9] Thus, implant should be considered as treatment option in patients where craniofacial growth is complete.

Cooperation and compliance to the new prosthesis are some of the main disadvantages of early complete denture therapy in young ED patients. [10] It is therefore necessary that parents take an active part in the treatment phase and ensure proper use of the prosthesis. [10]

CONCLUSION

Multidisciplinary approach in patients with ectodermal dysplasia will help to regain lost function and esthetics. Prosthesis in the growing age may need a periodic renewal as the child grows and a definitive prosthesis is fabricated.

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How to cite this article: Meenakshi A, Selvamani C, Mariasingam T et al. Prosthodontic management of ectodermal dysplasia in 5 year old child: a case report. Int J Health Sci Res. 2016; 6(1):525-529.

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