

Prosthetic rehabilitation of a patient with ectodermal Dysplasia – A case report

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Abstract

Ectodermal dysplasia is a group of inherited conditions in which two or more ectodermally derived anatomical structures fail to develop. Ectodermal dysplasia leads to anodontia and hypodontia. Oligodontia or total anodontia results in loss of function like chewing, speech and affects the appearance of the patient. Prosthodontic management can be completed with removable, fixed, overdenture, or implant-retained prostheses. Early dental treatment can improve the appearance of the patient, which leads to less emotional and psychological problems to the patient. For rehabilitation, it is important to know the age, number and condition of present teeth, and the status of growth of the patient. A 17-year-old male patient who was reported the prosthodontic department was treated by conventional maxillary denture and mandibular removable partial denture.

Keywords: Complete denture, Partial denture, Partial anodontia

Introduction

Ectodermal dysplasia was described by Thurnam, who reported two patients in 1848. The patients affected by ectodermal dysplasia have abnormalities of the development glands, tooth buds and nail. Ectodermal dysplasia syndromes are mild and severe. Other symptoms include xerostomia, respiratory infections, hearing or vision defects, cleft lip or palate, missing fingers or toes, sensitivity to light, lack of breast development and abnormalities of the ectoderm. However, there are very few documented examples of a person affected by ectodermal dysplasia syndrome dying because of an inability to perspire.⁽¹⁾

Ectodermal dysplasia is any syndrome that exhibits at least two of the following features, that is, abnormal hair (trichodysplasia), abnormal dentition, abnormal nails (onchodysplasia) and abnormal or missing sweat glands(dyshidrosis) More than 150 different variants of ED have been described.⁽²⁾ EDs are a result of inheritance factors, rather than a single, direct genetic mechanism.⁽³⁾ However, the mode of genetic transfer is debatable. Some are inherited as autosomal dominant or recessive trait disorders while others have a sex-linked mode of transmission. The variable expression of the dominant trait explains the clinical diversity of the disease. Hypohidrotic ectodermal dysplasia (HED) is one of the common types of ectodermal dysplasia. It is a specific syndrome manifested primarily by hypohidrosis, hypotricosis, and hypodontia.⁽⁴⁾ In such patients appearance of teeth is important as it affects the patient's confidence. Since hypodontia leads to atrophy of the alveolar bone, prosthetic treatment is of great value to these patients, from the functional view point as well as for psychologic and psychosocial reasons.

Case Report

An 17 year old male patient reported in the Department of Prosthodontics with the chief complaint of impaired esthetics and difficulty in chewing(Fig. 1). Patient's economic status was very poor. Intra oral examination revealed total missing teeth in maxillary arch and five teeth were present in mandibular teeth. Out of five teeth, one tooth was having grade three mobility.(Fig. 2, 3) Radiographic examination revealed complete anodontia in maxillary arch and partial anodontia in mandibular arch(Fig. 4). The chosen treatment option was removable conventional complete maxillary denture and mandibular removable partial denture. The oral prophylaxis was performed and mobile tooth was extracted(Fig. 5). Impression compound was used for maxillary primary impression and alginate impression material used for mandibular primary impression. Maxillary and mandibular custom trays were fabricated on primary casts. Maxillary border molding was done and zinc oxide eugenol paste was used for secondary impression. Mandibular secondary impression was made with dual impression technique with alginate in custom tray. Beading and boxing of the impressions was done and for greater strength and abrasion resistance the casts were poured with improved die stone. Jaw relations were recorded. A try-in was done and the waxed dentures were cured with heat polymerized denture base resin. (Fig. 6) The polished maxillary complete denture and mandibular partial denture were fitted in the patient' mouth(Fig. 7). Occlusal adjustments were done. Post-operative instructions were given to the patient and was recalled for follow-up.



Fig. 1: Preoperative front view



Fig. 2: Maxillary arch



Fig. 3: Mandibular arch



Fig. 4: Panoramic-X ray



Fig. 5: After extraction



Fig. 6: Final prosthesis



Fig. 7: Postoperative front view

Discussion

The treatment options for a ED patients with total anodontia and oligodontia include complete dentures, tooth supported overdentures and/or dental implants. There are some controversial questions namely, the right age for a prosthetic treatment, amount of residual ridge resorption (RRR) associated with these dentures and submerging of dental implants due to continuous bone growth in young patients. Complete denture treatment can lead to significant results in appearance, speech, mastication, and satisfactory diet.

The psychosocial status of a ED patient is important for any prosthodontic treatment. The edentulous appearance of an ED syndrome patient often has a negative effect on the patient's psychology. Poor

self-image, peer pressure, and school/job related discrimination have been directly related to psychological scarring experienced by ED patients.⁽⁵⁾

An early age treatment helps to modify the intraoral prosthesis during rapid growth periods. Prosthetic intervention can be done with a child as young as 2 or 3 years if the child is cooperative (Hickey, 2001). This also allows the child to adjust with the prosthesis or appliance and develop normal appearance, speech, mastication and swallowing as well as temporomandibular joint function (Ellis, 1992). Thus management of the orofacial disfigurement provides the patient with some measure of confidence. Treatment generally includes a removable and /or fixed partial denture, an overdenture, complete denture prosthesis or an implant retained prosthesis.⁽⁶⁾ In many cases of anhydrotic ectodermal dysplasia, the most common oral characteristic is hypodontia or anodontia.⁽⁷⁾ In the present case prosthodontic treatment was done by removable partial denture. The treatment option preferred was of a removable partial denture considering his present age and economic status.

Conclusion

The management of a male patient with partial anodontia by removable complete and partial denture was discussed here. Other treatment options are over denture and implant supported dentures. But patient is

not willing for extraction and root canal treatment for tooth supported over denture and implant supported dentures because of high cost. With these prostheses, the patient is enjoying a relatively normal life. This type of treatment for the patient resulted in better esthetics and improved chewing efficiency.

References

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