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**Case Report**

# Prosthetic Management of A Patient With Ectodermal Dysplasia – A Case Report

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ABSTRACT

Ectodermal Dysplasia is a specific syndrome characterized by a congenital dysplasia of one or more ectodermal structures. It is manifested by symptoms such as lack of sweat glands, anomalies in the skin and nails. Oral symptoms include multiple tooth abnormalities such as hypodontia, anodontia, impacted teeth and peg shaped or conical anterior teeth. Alveolar ridges are under developed. Prosthodontic management of a case with hypohidrotic ectodermal dysplasia with hypodontia ,prognathic lower jaw and marked ridge resorption is discussed. Rehabilitation in the form of telescopic cast partial denture opposing cantilevered fixed prostheses was given.

## Introduction

Ectodermal dysplasia syndrome (EDS) represents a large, heterogeneous group of inherited disorders, the manifestations of which could be seen in more than one ectodermal derivatives. The triad of nail dystrophy, alopecia and palmoplantar dyskeratosis is usually accompanied by a lack of sweat glands (hypohidrosis) and a partial or complete absence of the primary and/ or permanent dentition. Affected individuals usually have prominent supraorbital ridge, frontal bossing, fine linear wrinkles and saddle nose.[4,5]

The number of missing teeth varies, with a higher incidence in the mandible. Where some teeth are present, they are commonly cone shaped, complicating use as removable partial denture abutments, but sometimes offering the possibility for use as abutments for complete overdentures.

Oral rehabilitation of such patients is recommended to improve both the sagittal and vertical skeletal relationship during craniofacial growth and development, as well as to provide improvements in esthetics, speech, and masticatory efficiency[2]. Prosthetic solutions for ectodermal dysplasia include removable partial dentures, fixed partial dentures, and endosseous implants.

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**FIG 1: PRE-OPERATIVE VIEW**

**FIG 2: PRE OPERATIVE INTRA ORAL VIEW**

## CASE REPORT

- A 19 year young female patient reported to the Department of Prosthodontics Of Bharati Vidyapeeth Dental College And Hospital, Pune , for replacement of her missing teeth.
- She exhibited typical characteristics of Ectodermal dysplasia including scanty hair, thin eyebrow, depressed bridge of the nose and severe hypodontia and decreased sweating. (fig.1)
- Family history revealed that her mother was also suffering from ectodermal dysplasia.
- Past dental history revealed some of her deciduous teeth had exfoliated 6-7 years back.


**FIG 3:PRE-SURGICAL**

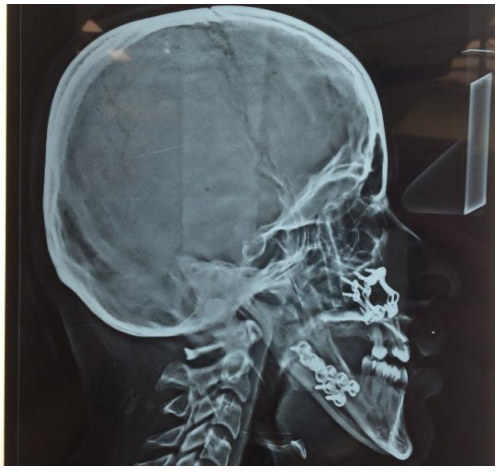

**FIG 4: POST-SURGRICAL**

- Clinical and radiographical examination revealed presence of mixed dentition. Teeth present were 13, 53, 14, 23, 24, 34, 35, 43, 83, 44 and 45 (Fig.2).
- Both maxillary and mandibular edentulous ridges were poorly developed due to absence of permanent dentition.Panoramic radiograph revealed absence of any developing permanent dentition . Temporomandibular joint appeared normal.

**FIG 5: PRIMARY COPING CEMENTED**

**FIG 6: METAL FRAMEWORK FOR TELESCOPIC CAST PARTIAL DENTURE WITH SECONDARY COPING**

**FIG.7 JAW- RELATION RECORD ON HANAU ARTICULATOR**

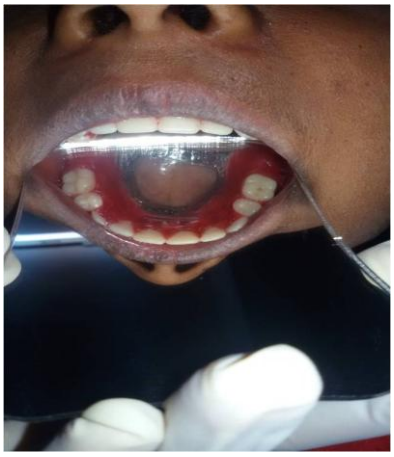

**FIG.8 TRY-IN DONE FOR TELESCOPIC CAST PARTIAL DENTURE**

- Jaw size was underdeveloped with prognathic lower jaw ,for which she had undergone bilateral saggital split osteotomy (BSSO),in the department of oral and maxillofacial surgery, Bharati Vidyapeeth dental college, Pune (fig.3,4)
- Lower facial height was reduced giving her an aged appearance.

## TREATMENT

1. Prior to prosthodontic treatment the deciduous canines were extracted
2. In order to improve speech, esthetics and mastication a telescopic cast partial denture opposing a mandibular fixed prosthesis with a single cantilevered molar was finalized as treatment plan. A telescopic denture consists of double crowns; primary crowns/coping and secondary crowns/telescope that slips precisely over the primary crowns, thus providing

**FIG 9 DENTURE INSERTION**

**FIG 10: POST OPERATIVE VIEW**

frictional retention between the primary and secondary crown.[3]

3. Diagnostic impressions were made and diagnostic jaw relation was recorded.
4. The maxillary canine and second premolar were prepared to receive a metal coping.
5. Impression was made using putty and light viscosity silicone (Zhermack, Italy) and poured in Type IV dental stone.
6. Coping was cast in base metal alloy, checked for fit and occlusal clearance and luted with glass ionomer cement (G.C.Corporation,Tokyo, Japan). (fig.5)
7. Special trays were fabricated using auto polymerizing resin with spacers
8. Border molding was done and final impression was made with medium viscosity addition silicone (monophase,Zhermack).
9. A new model was duplicated using agar for preparation of wax patterns for secondary copings along with the cast partial denture metal framework.
10. It was then casted in base metal alloy and checked for fit in patient's mouth.(fig.6)
11. Jaw relation was recorded and teeth selection was done considering the sex, personality and age of the patient.(fig.7)
12. Try in was done for telescopic cast partial denture.(fig.8)
13. During processing with heat polymerized acrylic resin, the second coping with metal collar was incorporated in the maxillary denture and thus added retention was obtained by friction of double metal crowns.
14. Insertion of telescopic cast partial denture.(fig. 9)
15. In the mandibular arch a cantilever fixed prosthesis was given which enhanced her esthetics improving her masticatory function. Gingival porcelain was given to improve the esthetics.(fig. 10)
16. The importance of oral hygiene and recall which is a fundamental aspect of denture prognosis was stressed to the patient.

## DISCUSSION

The use of telescopic crowns on natural teeth (a double crown system in which a primary crown is placed on the tooth to support a removable second crown) is a treatment concept that has been widely and successfully used to support dentures since telescopic crowns were introduced in 1970's.Patients with ED are most receptive to and appreciative of overdenture treatment because they experience a striking improvement in function and esthetics while still retaining some of their own teeth[1]. Careful consideration must be given to the age of the patient. A young patient who faces the loss of teeth can become the so called 'dental cripple' at a very young age. In general use of removable prostheses is recommended initially allowing the adjustment of the vertical dimension or maxillomandibular relationship, later so as to opt whenever possible for provisional fixed prostheses until a more stable and fixed situation is established. Whenever possible, implant supported dentures should be considered.

## CONCLUSION

In this case, use of maxillary telescopic cast partial denture and Mandibular cantilever fixed partial dentures was a practical alternative that provided a relatively quick, easy and economical solution to the functional and esthetic rehabilitation of the teenage patient. These dentures allow for easy access for oral hygiene around the abutment as well as ease of handling. Increased retention obtained leads to good mastication and phonetics. Telescopic crowns allow for an overdenture design that includes teeth with questionable prognosis providing scope for later tooth removal and readjustment of existing dentures.

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