

Prosthodontic management of ectodermal dysplasia: A case report

Basutkar Narendra*
Sakri Mohan**
Shahapur Satish***

ABSTRACT

Rehabilitation of patient's with ectodermal dysplasia presents a great challenge to the prosthodontist. Collapsed vertical height, malformed teeth, increased interarch space, over-retained deciduous teeth further complicate basic rehabilitation procedure to improve form, function, esthetics and psycho-social behavior of the patient. A proper diagnosis and treatment planning and application of prosthodontic fundamentals go a long way in the success of the treatment.

Keywords: Ectodermal dysplasia

INTRODUCTION

The ectodermal dysplasia's (EDs) are a group of genetic disorders involving congenital defects of two or more ectodermal structures; i.e., skin, hair, nails, nerve cells, sweat glands, and parts of the eye and ear.^{1,2} Oral findings often are significant and can include multiple abnormalities of the dentition (such as anodontia, hypodontia, or malformed and widely spaced peg-like teeth), loss of occlusal vertical dimension, protuberant lips, and lack of normal alveolar ridge development.³ With little or no dental support, a hypoplastic maxilla and mandible result in bite collapse and narrowing of the alveolar ridges. Because of the characteristic oral findings the dentist may be the first person to identify ED in young patients. All these factors like lack of dentition, presence of malformed teeth, collapsed bite and reduced

patient's psychological confidence complicate the fundamental rehabilitation procedure in these patients.

A prosthodontic rehabilitation is fundamental in these situations, attempting to provide a functional and esthetic solution that will allow the patient as normal a life-style as possible, without damaging self-esteem or psychological development.

CASE REPORT

20 year old female with ED was referred for dental treatment. The chief complaint of the patient was the unaesthetic appearance and lack of function of her dentition. Extra oral examination revealed generalized trichodysplasia (fine sparse hair, dry skin), a depressed nasal bridge, decreased lower facial height, protuberant lips. Intra oral examination showed presence of few teeth oligodontia and widely spaced peg like teeth (small, pointed, conical appearance), and over-retained right deciduous canine and deciduous canine and lateral on left side in the maxilla. Fig 1. Mandible showed presence of malformed, widely spaced premolars on both right and left side and over-retained, and worn out deciduous lower anteriors Fig.2

After discussing various treatment modalities

Author's Affiliation: *Department of Prosthodontics, Al-Ameen Dental College Bijapur, Karnataka, **Department of Conservative and Endodontics, Rural Dental College, Loni, Ahmednagar Dist. Maharashtra, ***Department of Prosthodontics, Al-Ameen Dental College Bijapur, Karnataka.

Reprint's request: Dr. Basutkar Narendra, M.D.S, Asst. Professor, Department of Prosthodontics, Al-Ameen Dental College, Bijapur Karnataka, Cell no. 09980100745 & 08088625856, E-mail dr.basutkar@rediffmail.com.

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Figure 1. Intra oral view- teeth in occlusion

with patient and their family members, it was decided to give fixed prosthesis for the maxillary arch and lower flexible partials over the retained deciduous anteriors.

Figure 2. Intra oral view- mandible

Preliminary impressions were made with irreversible hydrocolloid material. Casts were generated with dental stone. Patient's vertical dimensions at rest was recorded using physiologic methods of recording vertical dimension, vernier caliper was used to take the measurements. Average of 3-4 measurements was taken as the reading for vertical dimension at rest. 2-4 mm was reduced from this measurement to get the vertical dimension at occlusion (VDO). Alu wax was softened and tempered in a water bath, patient was asked to bite in centric on the softened Alu wax till predetermined VDO was

achieved. This centric wax record was used to mount the casts on to the mean value articulator. This centric wax record was later preserved in cold water for future use.

Diagnostic wax up was done on the mounted casts, these wax patterns were directly flaked and cured to obtain heat cure acrylic resin provisional restorations. These provisional restorations were tried in patient's mouth and checked for proper fit. Occlusal contacts were checked and corrected to achieve harmonious simultaneous centric contacts. Provisional restorations were luted using temporary luting cements Fig 3. Patient was instructed to maintain a soft diet and good oral hygiene practice.

Patient was recalled on two weeks basis for 12 weeks, patient reported no TMJ discomfort for the raised VD. Patient also reported improved masticatory efficiency. After 12 weeks of observation, it was decided to go ahead with the fabrication of final prosthesis.

Figure 3. Heat cure temporary restoration luted in place

MOUTH PREPARATION

Lower deciduous anteriors which radiographically showed obliterated canals and no periapical changes were reduced to gum level to be retained under the flexible partial denture. Right upper deciduous canine was endodontically

treated, and left upper deciduous lateral and canine was extracted on the grounds of poor endodontic prognosis.

After a week of required mouth preparation, tooth preparations were carried out. Conical shaped teeth hardly required any occlusal reduction. The centric wax record was relined with zinc oxide eugenol paste and used to record the patients bite.

Final impressions were made using rubber base impression material, casts were poured with die stone. Using Hanau's spring bow face bow transfer of the maxilla was done and the maxillary cast was mounted to the semi adjustable articulator using this face bow record. Lower cast was mounted using the centric wax record.

Full wax up was carried out initially and cut back was done to provide space for the porcelain. Wax patterns were invested and casted using Co-Cr alloy. Metal try in was carried out to adjusted to achieve proper fit. After the ceramic build up, bisque trial was done and occlusal contacts were corrected to achieve simultaneous contacts.

After glazing, final metal-ceramic restorations were cemented using resin reinforced glass ionomer cement Fig 4. Metal-ceramic crowns in relation to lower premolars were also cemented with resin reinforced glass ionomer cement.

Figure 4. Permanent metal-ceramic restorations and flexible lower partials



Fabrication of lower flexible partial denture.

After cementing lower metal ceramic crowns, an irreversible hydrocolloid impression was made with lower arch. Custom tray covering the edentulous area was fabricated with self cure resin. Using this tray border molding and functional impression of the edentulous area was made using zinc oxide eugenol impression paste. An alginate over impression using stock tray was made. Thus master cast for the fabrication of the lower flexible partial denture was obtained. Jaw relation was recorded; Teeth were arranged for better esthetic results. Try-in was carried out. After obtaining esthetic approval from the patient, trial denture was flaked and cured. Flexible lower partial was tried and occlusal contacts were verified.

Patient was instructed on insertion and removal of the prosthesis. Patient was instructed not to wear the prosthesis during night. Importance of oral hygiene and denture hygiene was stressed to patient. Fig 5 & Fig 6

Figure 5. Before treatment



Figure 6: After treatment**REFERENCES**

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