

Case Report

THE PROSTHETIC MANAGEMENT WITH A SPEECH- AID PROSTHESIS IN ECTODERMAL DYSPLASIA PATIENT ASSOCIATED WITH CLEFT PALATE-A CASE REPORT

Gautham P.¹, *Sasidhar Reddy V.², Nelluri V. Vasudha¹, Rajani G. Kumar¹ and Sai A. Rohith¹

¹Department of Prosthodontics, Meghna Institute of Dental Sciences, Nizamabad, Andhrapradesh

²Department of Oral & Maxillofacial Surgery, Meghna Institute of Dental Sciences,
Nizamabad, Andhrapradesh

*Author for Correspondence

ABSTRACT

Ectodermal dysplasia is a congenital disorder presenting with dry skin, micro and anodontia. It is sometimes associated with cleft palate and females are usually carriers. The present case report deals with a maxillary and mandibular completely edentulous young female patient with congenital Ectodermal dysplasia associated with partial cleft of soft and hard palate (Veau class II) treated with Speech-Aid prosthesis along with maxillary and mandibular complete dentures.

Key Words: Ectodermal Dysplasia, Veau Class II, Speech-Aid Prosthesis, Anodontia, Cleft Palate

INTRODUCTION

Ectodermal dysplasia syndrome affects skin, hair, nails, eccrine glands and teeth. It may manifest in association with midfacial defects, mainly cleft lip and palate. X-linked hypohidrotic ectodermal dysplasia has full expression only in males. Female carriers outnumber men, but females show little or no signs of the condition (Rajendran and Shivapathasundharam). The oral findings are of particular interest, even when complete anodontia exists, the growth of the jaws is not impaired. However, the alveolar process does not develop in the absence of teeth; there is reduction of normal vertical dimension, high palatal arch and cleft palate. As Velo-Pharyngeal (VP) dysfunction may be congenital, developmental, or acquired, it may affect all age groups. It may occur either as VP insufficiency or as VP incompetence. Prosthetic management of VP insufficiency is done by means of speech-aid prostheses (SAPs), whereas VP incompetence is treated with palatal lift prostheses (PLPs). The functional component of the SAP is a nasopharyngeal section ("speech bulb") that is shaped to conform to the activity of the VP during speech and swallowing, whereas PLP reduces hypernasality by approximating the incompetent soft palate to the posterior pharyngeal wall (Shifman *et al.*, 2000).

The present case report deals with E D patient treated with Speech- aid prosthesis/ Pharyngeal obturator attached to maxillary complete denture.

CASES

A 35- year old female patient presented to the department of prosthodontics at our centre for replacement of missing teeth. Patient complained of difficulty in eating food and difficulty in speech. The extra oral examination shows dryness of the skin and drooping of corners of the mouth with thin lips, scanty hair, thin & brittle nails. The intra-oral examination showed complete edentulism of the maxillary and mandibular arches with cleft of the soft palate (Figure 1). The palatal defect corresponds to the class II of classification described by Veau and Ruppe (1922). The oral mucosa was thin and dry, tongue function was normal and speech was altered due to Veau class II cleft involving both the hard and soft palate. Patient gives a history of microdontia in anterior regions and got them extracted few years ago due to loosening. In the present case, complete dentures in the maxillary and mandibular arches was planned to improve esthetics and mastication. Speech- aid prosthesis is attached to the maxillary denture. It refers to the prosthesis which restores palate-pharyngeal function for defects of soft palate (Carr *et al.*,). Three basic parts of cleft palate prosthesis includes palatal portion that lies within the boundaries of the hard

Case Report

palate. The alveolar portion of the prosthesis transverse the length of the soft palate area replacing its body and pharyngeal extension is the functional component providing contact with the posterior and lateral pharyngeal wall (Stewart *et al.*,).

Procedure

1. **Fabrication of the diagnostic cast:** Primary impressions of the maxillary and mandibular edentulous arches were recorded with impression compound by blocking the undercuts in the maxillary arch.
2. **Fabrication of the special tray:** Maxillary special tray is fabricated with posterior extension blocking the undercut. Adjustments of the tray were made by placing it intra-orally and oral and oro-pharyngeal structures in relation to denture base were observed. Wax pencil was used to mark the width of the extension into the oropharynx and nasopharynx and measured it on the denture base. Length of the defect was measured with the handle of mouth mirror until it touches the posterior pharyngeal wall.
3. **Border Moulding:** Border moulding of the maxillary special tray was made with green stick compound. The contours of the defect was recorded on the posterior extension of the special tray with Impression compound, while the patient swallows, speaks, breathes and circular head movements were made (McGivney *et al.*,) (figure 2).
4. **Final Impression:** Final impression of the maxillary edentulous arch and the posterior extension of the defect were obtained using light body addition silicone. The contours of the defect was recorded, while the patient swallows, speaks, breathes and circular head movements were made (figure 3). Final impression of the mandibular edentulous arch was made with conventional method.
5. **Prosthodontic Phase:** Initially an interim prosthesis was fabricated for habituation (figure 4). It is followed by fabrication of conventional maxillary & mandibular complete dentures and fabrication of speech aid prosthesis attached to maxillary complete denture.

DISCUSSION

Obturator prosthesis is fabricated for patients who have congenital, developmental or acquired defect. The obturator attempts to re- establish velopharyngeal closure control nasal emission during speech and assist in preventing nasal regurgitation of food during swallowing. The position and level of the obturator prosthesis in the nasopharynx is determined by position of movement of the velopharyngeal mechanism. During the tracing procedure it is important not to over extend or under extend in any direction to capture appropriate velopharyngeal motion and tissue approximation (Sprintzen and Bardach, 1995).



Figure 1: Intra-oral view of the defect

Case Report



Figure 2: Special tray with border molding and contouring of the defect

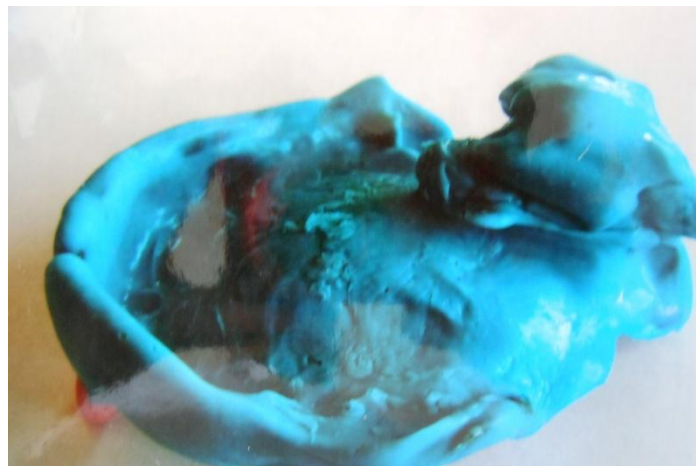


Figure 3: Final impression with light body addition silicone

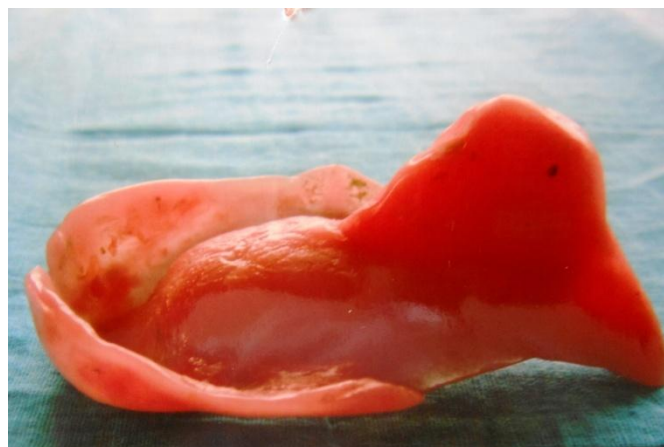


Figure 4: Interim speech aid prosthesis

Case Report

An interim prosthesis for patient habituation is always helpful as they may experience gag response or choke on the prosthesis. Patient motivation and careful explanation is necessary to reduce the apprehension. Xerostomia is an important concern in ED patients. Oral saliva substitutes or lubricants or sialogogues may be advised. The final prosthesis may be provided with reservoirs to carry artificial saliva in these patients (Toljanic and Zucuskie, 1984). Implant supported over dentures with speech aid prosthesis would improve retention (Mentag and Kosinski, 1981) and have positive social and psychological impact in the present young female patient.

Conclusion

Combining the maxillary complete denture with speech aid prosthesis may provide improved quality of life and appropriate Naso-pharyngeal Obturation. Proper contouring of the soft palate cleft is of utmost importance for tissue approximation and sufficient lubrication with any of the adjuncts such as oral saliva substitutes or lubricants or sialogogues or reservoirs in the prosthesis in xerostomia patients.

REFERENCES

- Arie Shifman DMD, Yehuda Finkelstein MD, Ariela Nachmani MA and Dov Ophir MD (2000).** Speech aid prosthesis for neurogenic velopharyngeal incompetence. *Journal of Prosthetic Dentistry* **83** 99-106.
- Carr et al., (No Date).** Mc Craken's removable partial prosthodontics 11th edition 405.
- McGivney et al., (No Date).** McCracken's Removable Partial Prosthodontics 8th edition 480.
- Mentag PJ and Kosinski TF (1981).** Increased retention of a maxillary obturator prosthesis using osseointegrated intramobile cylinder dental implants: a clinical report. *Journal of Prosthetic Dentistry* **60** 411-415.
- Rajendran and Shivapathasundharam (No Date).** Shafer's' textbook of oral pathology 5th edition 1099-1101.
- Sprintzen RJ and Bardach J (1995).** Cleft palate speech management. St Louis: CV Mosby.
- Stewart et al., (No Date).** Clinical removable partial prosthodontic 2nd edition 650-651.
- Toljanic JA and Zucuskie TG (1984).** Use of palatal reservoir in denture patients with xerostomia. *Journal of Prosthetic Dentistry* **52** 540-544.
- Veau V and Ruppe C (1922).** Anatomic Chirurgicale de la division palatine. *Journal de Chirurgie Viscérale* **20**(1).