

CLINICAL REPORT

Multidisciplinary Approach for Prosthetic Rehabilitation of neglected Cleft Palate –A CaseReport

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ABSTRACT

Cleft lip and palate is one of the most common birth defect. Rehabilitation of such defects requires a multidisciplinary approach. Treatment can range from simple removable appliances to fixed prosthesis using implants. The size of the defect, age and socioeconomic status influences the treatment planning. This case report describes a conservative approach to rehabilitate a maxillary defect with missing teeth using a heat polymerized acrylic resin improving the function, esthetics and speech.

INTRODUCTION

Cleft lip and palate is one of the most common birth defects. They are present as openings or splits in the upper lip, roof of the mouth or both. It has been associated with various inherited genetic conditions and syndromes. Other causes include malnutrition and irradiation during pregnancy, stress, teratogenic agents, and infectious agents.¹ Cleft palate causes associated functional, esthetic and phonetic problems. Rehabilitation of patients with cleft lip and palate involves a multidisciplinary approach involving surgeons, orthodontists, prosthodontists and speech therapist.

The definitive prosthodontic treatment in such cases depends on the extent of the defect. This clinical report describes the prosthetic rehabilitation of a cleft palate patient using a heat polymerizing acrylic resin obturator with the objective to provide satisfactory esthetics and function.

CASE REPORT

A 40-year-old female patient with mobile upper front tooth reported to Malabar Dental College and Research Centre. [Figure.1] On examination, the

patient had unilateral untreated cleft palate and cleft lip that was surgically closed and with the presence of an oro-nasal communication. Patient had all teeth missing in the maxillary arch except the left central incisor, mandibular anterior teeth, and root stumps in the posterior region. The teeth present were periodontally weak and caries prone. The tissue surrounding the maxillary central incisor was inflamed. Further investigations revealed that the patient was malnourished and could be due to the poor intake of food due to the defect. It was a neglected case and the defect had become a part of her life. Case was assessed and a multidisciplinary approach was planned to give the patient a better quality of life by prosthetic rehabilitation that improves her esthetics, function and phonetics.

Initial phase of scaling and root planning of the lower mandibular teeth with fair prognosis followed by extraction of the root stumps and grossly decayed teeth, extraction of the maxillary left central incisor and excision of inflamed hypertrophied tissues and contouring the ridge to receive prosthesis was planned and executed. [Figure 2]

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A diagnostic impression was made after complete healing of the tissue with irreversible hydrocolloid after blocking the defect with a moist gauze piece to prevent intrusion of the material into the nasal cavity. [Figure 3] The impression was removed and poured with type III gypsum material. A custom tray was fabricated in the diagnostic cast using auto-polymerizing acrylic resin (DPI, India). Border molding was done using low fusing impression compound (DPI, India) to record the functional limits of the surrounding soft tissue. Tray adhesive was applied, and a wash impression was made with light body polyvinyl siloxane impression material (Photosil light body, DPI, India). Master cast was prepared with type III gypsum material.



[Figure 1] Preoperative view [Figure 2] extraction of maxillary central incisor and inflamed tissue



[Figure 5] Trial denture base delivered to the patient

A definitive trial denture base was fabricated on the master cast using heat polymerized acrylic resin material (DPI, India). [Fig 4] After finishing and [Figure 3] Diagnostic impression [Figure 4] Definitive trial denture base polishing, trial denture base was delivered to the patient and hygiene instructions given. [Figure 5] The patient was reviewed till one month to get adapted to the definitive denture base. After onemonth, occlusal rim was fabricated on the heat cured definitive trial denture base and jaw relation recorded for teeth arrangement.



A trial insertion was carried out with the waxed prosthesis and after final approval from the patient with regard to esthetics, the waxed-up prosthesis was invested and acrylized with heat polymerized acrylic resin (DPI, India). [Figure 6] The prosthesis was removed, finished, and polished and inserted into the patient's mouth. [Figure 7] The [Figure 6] Trial insertion [Figure 7] Final prosthesis patient was again reinforced with oral hygiene and home care instructions. The patient was recalled after 24 hours, 48 hours, 72 hours, 1 week, 14 days and one month to ensure the hygiene status, health of the tissue and to make any adjustments if required. Patient showed satisfactory response to the prosthesis and an improvement in general health was observed at the end of one month. Speech and esthetics had significantly improved along with the function.

DISCUSSION

The rehabilitation of esthetics and function in patients with cleft lip and palate requires a multidisciplinary approach and long term involvement.^{2,3} Treatment planning is done based on the extent of malformation and dysfunction.⁴ Factors involved are: position of cleft palate, remaining teeth if present, maxillary collapse, maxilla-mandibular relationship, age, patient psychology and socio-economic status.⁵ Removable partial dentures are especially indicated in patients with tissue deficiency, several fistulae, soft palate dysfunction or uncoordinated nasopharyngeal sphincter action leading to hypernasal speech.⁶ Prosthetic options available today ranges from noninvasive methods to surgical intervention involving implant supported prosthesis.³

A definitive rehabilitation improves the life status of the patient to a greater extent with respect to the esthetics and function thereby improving the overall health of the individual. Prosthetic rehabilitation is the final stage in the rehabilitation sequence of a patient with cleft.⁷

Rehabilitation process starts early in life of a patient with cleft palate. The initial surgical closure of cleft lip and palate starts as soon as the patient is 1 month old followed by various modalities like obturator for feeding, replacements as growth happen and orthodontic intervention in case of collapsed arches and finally replacement of missing teeth if any and closure of defect definitively for proper speech, esthetics and function.

The case discussed here has the defect extending from the alveolar ridge. All maxillary teeth succumbed to extraction due to poor periodontal condition and the only remaining tooth was the periodontally compromised maxillary central incisor. The patient had poor esthetics and affected phonetics. The patient was surgically treated by removing the existing tooth and the inflamed tissues to get an ideal contour of the residual ridge. A trial denture base in heat polymerized acrylic resin was given which was later converted to definitive prosthesis. This accentuated the appearance of the patient, speech and function improved considerably.

It is essential to address the remaining teeth, if any, as well as remaining hard and soft tissue before stating the prosthetic rehabilitation. Lip support is a major problem in cleft lip and palate cases. Here, the complete denture can be modified to provide adequate lip support as well as esthetics.

The patient had a neglected history with respect to the oral cavity and was malnourished due to difficulty in food intake, and a diet mostly restricted to liquids and semi solids. Hence, adequate measures were taken so that defect is closed and proper food intake is ensured. Also, a try in denture base was provided to the patient before the definitive prosthesis for getting accustomed to a foreign object in mouth so much later in life.

CONCLUSION

A multidisciplinary approach which involves the collective expertise from different specialties improves the treatment outcome especially in adult patients with cleft palate. A good treatment planning gives a good result for the patient esthetically and functionally, and thus improves the quality of life of the patient.

DECLARATION OF PATIENT CONSENT

It is certified that all appropriate patient consent has been obtained in forms. The patient has given her consent for her images and other clinical information to be reported in the journal.

The patients understand that their names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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