

PROSTHETIC REHABILITATION OF CLEFT PALATE PATIENT: A CASE REPORT

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ABSTRACT: Cleft palate is a commonly observed congenital maxillofacial defect. Numerous methods of prosthodontic rehabilitation have been advocated ranging from simple removable prosthesis to implant supported restorations. The final choice mainly depends upon the existing clinical condition and patient's acceptance towards treatment. This clinical report describes a conservative and cost effective method of rehabilitation of a cleft palate patient using a removable partial denture made from heat polymerizing acrylic resin.

KEYWORDS: Obturator, Cleft lip, Cleft palate, Denture, Partial Denture

INTRODUCTION

Cleft palate with or without cleft lip is one of the commonly observed congenital maxillofacial defect. The etiology of the cleft lip and palate is unknown. Malnutrition and irradiation during pregnancy, psychic stress, teratogenic agents, infectious agents and heredity have been reported as causes of cleft palate^{1,2}. Patients with cleft palate usually have associated functional, esthetic and phonetic problems. Rehabilitation of patients with cleft lip and palate involves a multidisciplinary approach involving plastic surgeons, orthodontists, prosthodontists, psychologist and speech therapist. There are various methods of definitive prosthetic treatment in cleft palate patients depending on the severity 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 of providing satisfactory esthetics and function.

Case Report

A 38 year old man with bilateral cleft lip and palate reported to the Department of Prosthodontics, Manipal College of Dental Sciences, Mangalore, with a chief complaint of ill fitting dentures, hyper nasality of voice, and difficulty in eating and speaking. History revealed that patient underwent surgical correction of the defect when he was 12yrs old. The patient had been wearing removable partial denture with an obturator and presented a history of impression material being locked in the defect in the past and therefore was apprehensive.

Extra oral examination revealed inadequately repaired cleft lip and lack of lip support due to absence of anterior alveolus. Intra oral examination revealed inadequately repaired cleft palate. There was residual cleft in the pre maxillary region with the oro nasal communication. **(Fig.1)** The post surgical tissue contractures were evident in the posterior third of the palate. On palpation there was no bony support available on the horizontal portion of the anterior and posterior palate. Only right second molar was present in the maxillary arch and the mandibular arch was a Kennedy's class I with modification 2 partially edentulous situation. Oral hygiene was poor with gingival recession seen on the mandibular teeth. Various modalities of prosthetic reconstructions were discussed with the patient and the patient indicated for an economical solution. Hence, it was planned to fabricate a maxillary interim obturator using heat polymerizing acrylic resin with the objective of sealing the oro-nasal communication to improve speech, mastication, deglutition, esthetics, and to replace lost teeth. It was planned to cover the only tooth present with the denture base as it had inadequate crown height. Removable partial denture for the mandibular arch was also planned. The expectations of this prosthesis were explained to the patient.

After the oral prophylaxis, an impression of the maxillary defect was made with irreversible hydrocolloid impression material **(Fig.2)** (Imprint; Dental Products of India Limited, Mumbai, Maharashtra, India). A piece of moist gauze was placed into the defect to block the



Fig. 1- intra oral view of defect



Fig 2 –primary impression



Fig.3-functional border moulding with impression of the defect

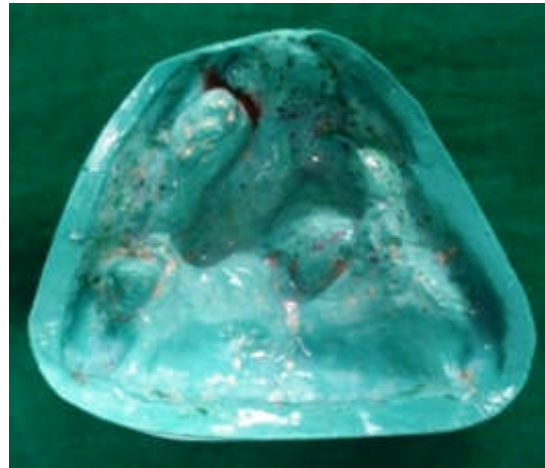


Fig.4- master cast



Fig.5a - final prosthesis



Fig. 5b - final prosthesis

undercuts and to prevent intrusion of the material into the nasal cavity. The impression was removed and poured in type III gypsum product (Dentstone; Pankaj Industries, Mumbai, India).

A custom tray was fabricated on the diagnostic cast using autopolymerising acrylic resin (Rapid Repair; Dentsply, Milford, USA). Border moulding was carried out using low fusing impression compound (Dental Products of India Limited, Mumbai, Maharashtra, India) to record the functional limit of the surrounding soft tissues. Details of the defect area were recorded using type 2 impression compound (Pinnacle; Dental Products of India Limited, Mumbai, India) (Fig.3) and a wash impression was completed using zinc oxide eugenol (Dental Products of India, Mumbai, Maharashtra) as patient was apprehensive. Master cast was prepared with Type III gypsum material. (Fig.4) On the master cast a record base and occlusal rim was fabricated. Jaw relations were recorded to restore adequate vertical dimension and teeth arrangement was done. The wax prosthesis was verified at the trial insertion appointment. The waxed prosthesis was invested and the wax was eliminated. A mold was prepared and packed using heat polymerizing acrylic resin (Trevalon; Dentsply, Milford, USA). The prosthesis was recovered after polymerization, finished and polished. The prosthesis was inserted into the defect and was evaluated on the patient. (Fig.5a and 5b)

Patient was instructed on home care and prosthesis maintenance. The patient was scheduled for the first post insertion adjustment 24 hours after the insertion. This was scheduled to ensure health of the tissues, to relieve the prosthesis from pressure areas on the tissues and to emphasize hygiene and home care. The patient was placed on a three month recall for evaluation. The patient reported satisfaction with the outcome of the treatment.

Discussion

Rehabilitation of cleft palate patient presents a clinical challenge with functional, esthetic and psychosocial problems³ and involves a multidisciplinary approach. Various methods of prosthetic rehabilitation include conservative removable and fixed prosthesis for patients who refuse surgical intervention, to invasive implant supported prosthesis. The selection of the treatment depends size of the defect, number of teeth present, amount of bone support, Removable partial dentures are especially indicated in patients with tissue deficiency, several fistulae, soft palate dysfunction or uncoordinated naso pharyngeal sphincter action leading to hypernasal speech⁴.

The objective of the treatment is to restore the esthetics and function within limitations and to improve the self esteem of the patient. In the present case a removable partial denture with the obturator was planned

as it is more conservative than the alternative methods. There were inadequate teeth present to support a fixed prosthesis. Due to inadequate alveolar bone support implant supported prosthesis was not possible. Furthermore, the economic status of the patient precluded the selection of more expensive treatment. The esthetic and functional outcome was satisfactory.

SUMMARY AND CONCLUSION

This clinical report describes an effective non invasive method for prosthetic rehabilitation of a cleft lip and palate patient. The advantages of this prosthesis are it is cost effective, tissue tolerant, esthetic, comfortable to use, easy to fabricate and clean.

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