A MAXILLOFACIAL REHABILITATION WITH VELOPHARYNGEAL OBTURATOR PROSTHESIS: A CASE REPORT

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ABSTRACT
Rehabilitation of velopharyngeal defect is challenging for both surgical and prosthetic field. A prosthodontist can best contribute the total care of patient with cleft palate by participating all the phases of treatment from birth to completion of growth. Here, a case report has been presented with velopharyngeal defect closed with the velopharyngeal obturator prosthesis.

Keywords: Veloharyngeal obturator prosthesis, Velopharyngeal defect. Cast metal frame work

1. Introduction

The name obturator is derived from the latin verb "obturare" which means close or to shut off. According to the glossary of prosthodontic terms obturator is defined as prosthesis used to close a congenital or a acquired tissue opening, primarily of hard palate and or associated alveolar structures[1].The intraoral defects can be either congenital or acquired. Palatopharyngeal insufficiency is an acquired or congenital anatomic defect of the soft palate that makes the Palatopharyngeal sphincter incomplete.

Mazaheri and Millard[2] suggest that for optimal restoration of function and speech the following guidelines should be observed:

1) Superior extension should be located in the nasopharynx at the level of normal palatal closure.

2) Inferior extension should be a continuation of the palatal plane and should be concave to provide adequate space for tongue movement.

3) Inferior margin should be placed at the region of maximum pharyngeal activity.

4) Superior surface should be convex and polished to deflect nasal secrections into the oropharynx.

This article presents a case report of a 22- year-old female with a velopharyngeal insufficiency, rehabilitated with a velopharyngeal obturator attached to convention removable partial denture.

2. Case report:

A 22 year old female patient came to department of prosthodontics, A.B Shetty memorial institute of dental sciences, Mangalore with complaint of inability to speak and regurgitation of nasal secretion .No significant past medical history was noted.

Intra oral examination revealed presence of all teeth and cleft of soft palate. Surgical closure of the cleft lip was done. (Figure 1)

Figure 1: Preoperative photograph

2.1 Treatment Planning

Prosthodontic treatment was decided with a cast metal frame work,with anterior partial denture and a pharyngeal prosthesis.

Procedure

- Maxillary and mandibular perforated stock trays were selected.Maxillary tray was modified with wax extention into the defect to record the defect.A gauze strip lubricated with petroleum jelly was packed into the cleft area prior to impression making to prevent the impression material from being forced into the nasal cavity. The Maxillary and mandibular preliminary impressions were made with irreversible hydrocolloid impressions(Zelgan 2002) were poured in dental stone[3].
- Surveying of the diagnostic cast done and mouth preparation planned.Next appointment mouth preparation done with

rest seat preparation done on 14,24,16,27 maxillary teeth.

- Impression made with heavy and light body polyvinyl siloxane(Aquasil,Dentsply) using a custom made special tray.(Figure 2) Impression poured with type iv die stone(Kalrock). The master cast was surveyed and block out for fabricating maxillary cast metal frame work[4].
- Full palatal coverage with an extension loop , extending into the defect to aid in retaining acrylic plate. Anteriorly a open lattice was designed over the maxillary incisor tooth. This was done to give one more row of anterior teeth canine to canine for better esthetics.Wax pattern was invested and casted.(Figure 3)
- Fit of the metal frame work was verified in the mouth. Next step was to make an impression of the defect using green stick compound (DPI) by asking the patient to swallow and rotate her head to record the velopharyngeal region. Master cast was poured by altered cast technique.((Figure 4& Figure 5)
- Try in of the defect closure done with self-cure acrylic resin and adjusted where ever needed. To improve the esthetics, anteriorly a row of teeth (canine to canine) was arranged in front of the existing anteriors.
- The metal frame work with anterior trial denture is placed in the master cast and velopharyngeal defect was filled with wax. The cast is invested and flasked. Processing of heat cure acrylic (DPI) was done.Later it was deflasked trimed and polished. Fit and insertion of the was done.(Figure 6).Post insertion and after care instruction was given.

Figure 2: Secondary impression of the defect

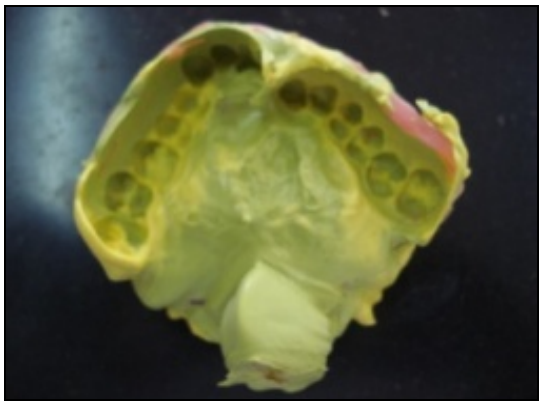
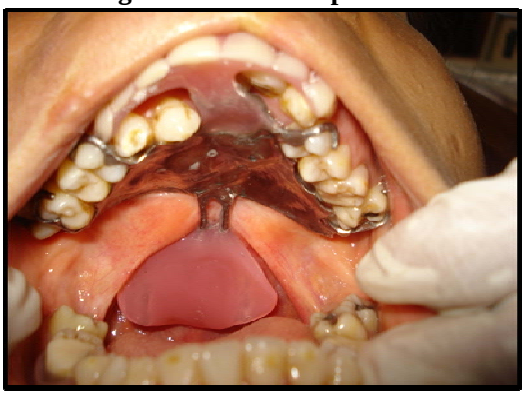


Figure 3: Refactory cast with wax pattern for frame work

Figure 4: Metal frameworks try in

Figure 5: Final impression of the pharyngeal section

Figure 6: Intra oral prosthesis



3. Discussion

As with all phases of prosthodontics, there can be considerable difference in soft palate defects from one patient to another.There are many techniques that would lend themselves development of acceptable obturator prostheses. It must always be remembered, and the patient must be so counseled in advance of treatment, that the prosthodontist cannot restore the intricate neuromuscular structure that is the soft palate[2]. The clinician can only try to provide an alternative means for oropharyngeal function. How successful that alternative is will be dependent on the patient's ability to accept the defect and to adapt to an alternative environment.This article outlines the prosthodontic management of velopharyngeal defect, complete palatal major connector was used to obturate the palatal cleft and velopharyngeal bulb for velopharyngeal inadequacy.There was no scope for extension of the obturator into the defect as the inferior turbinates and other sensitive tissues were present. The design of the framework provided sufficient retention for the prosthesis.

Conclusion

Unlike some of the discipline involved in the treatment of cleft palate patient, the prosthodontist have an application from birth to death. Prosthodontic care never ends. Once surgical care and speech therapy have been completed, the need for follow up care is required unless specific problems manifest. Preventive care is imperative if long term preservation of the supporting structure is desired.

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