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Velopharyngeal prosthesis: A case report

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Abstract

Pharyngeal obturator prostheses are used to rehabilitate patients with soft palate defects and velopharyngeal insufficiency and to restore the congenital or acquired defects of the soft palate for adequate closure of palatopharyngeal sphincter. Surgical correction is required for speech correction in patients affected by velopharyngeal dysfunction but it may not be feasible in some clinical situations. Prosthetic treatment along with speech therapy is the treatment modality in patients who cannot be treated with surgery. Obturation of the defected necessary otherwise it may lead to velopharyngeal dysfunction, hypernasality and regurgitation of food and liquids. This case report narrates the rehabilitation of a patient with maxillary mid palate along with soft palate defect with velopharyngeal insufficiency by a velo-pharyngeal prosthesis. *Key-words: (Times New Roman, 10, Bold).*

Keywords: velopharyngeal, obturator, maxillectomy, maxillary defect

1. Introduction

Partial maxillectomy is the treatment of choice congenital and acquired defects, defects due to trauma and tumors.

These defects lead to speech and swallowing difficulties along with along with secretion from the nasal cavity that may come in contact with the oral cavity, thereby, decreasing the life quality of its users drastically. As a consequence of the complexity of maxillary surgical reconstruction and uncertain reestablishment of the deficient functions, the obturator denture is a common treatment of choice. The denture seals the oral and nasal cavities, recovers both chewing and speech functions, provides labial support, decreases salivation, and restores the Esthetics.^[1]

2. Case Report: A 60-year-old male patient reported to the department with a chief complaint of missing teeth and difficulty in communication. Intraoral examination revealed a mid-palatine defect (Vaeu's class 2.) The defect measured approximately 1x5cm in dimension (figure1). Primary impression was made with impression compound after blocking the defect undercut using gauze piece tight with a thread. The primary cast was made. A full spacer was used with four tissue stops, the soft palate area was covered and over that a special tray was made (figure 2). To record the soft palate defect area a wire component was used and that was covered with clear acrylic to record the tissue extension, as the extension part of the special tray was attached through a wire component, the extension part was movable. After placing the special tray, the border extension was marked all over including the extended part and necessary trimming was done. Border molding was done using greenstick compound to record the sulcus depth extension with all functional movements. The extension was passively touched to the soft palate for making a complete mucosal impression after removal of the spacer. Thus functional movement of soft palate was also recorded by the final impression (figure 2) using monophasic impression material (3M). A master cast was poured and the defect undercut area was blocked using dental plaster and other necessary blockout was done using modeling wax and denture base was made using self-cure acrylic resin and jaw relation and tryin was done using conventional protocol (figure 3). As patient was completely edentulous, mandibular arch was rehabilitated with conventional complete denture with conventional protocol along with obturator prosthesis. During tryin patient was asked about denture characterization and minor spacing, tilting teeth, overlapping, attrition was given along

with soft tissue color, pigmentation and shape, and texture. All the previous measurements were rechecked during try in procedure and was incorporated with the denture base and soft palate was waxed up for the acrylization of the prosthesis. After trimming, finishing and polishing of the intaglio surface of the prosthesis was layered with fit checker to check the homogeneous surface adaptation of this prosthesis (figure-4). All the occlusal interferences were eliminated using 40micron articulating paper (Bausch) and patient was recalled after one day for check-up. After a week the intaglio surface of the prosthesis was relieved completely by trimming and permanent soft lining material (GC) was used and the minor space between the denture base and the extension was covered with soft relining material (figure 5) to prevent air escape during speech.

3. Discussion

The goals of prosthetic rehabilitation for total and partial maxillectomy patient include separation of oral and nasal cavities to allow adequate deglutition, articulation, and mastication. Velopharyngeal function is required for normal oro-nasal respiration control.³It also helps in swallowing, blowing, sucking, sneezing and whistling due to local or systemic reasons, Surgical correction in cases of VP insufficiency may be contraindicated. For such patients prosthetic treatment is preferred. The objectives of obturators are to provide capability for the control of nasal emission and inappropriate nasal resonance during speech and to prevent the leakage of material into the nasal passage during deglutition [4, 5]. Functioning of the prosthesis depends upon the degree of the defect. If the defect includes soft and hard palate resections, the discomfort with the usage of obturator increases, but if fabricated properly, speech-aid prosthesis will allow an acceptable pharyngeal and oral comfort without any interference with oral articulation.

Here the presented case was of a mid-palatine defect from anterior maxilla involving the soft palate due to the adequate favorable midline defect undercuts and broad maxillary ridge, retention and stability were satisfactory. Mucostatic functional impression of soft palate was helpful for the velopharyngeal closure without any tissue soreness. Overall application of permanent silicon based resilient soft liner was dissipating masticatory forces, engaging the undercuts inside the defective area, therefore the resilient effect of soft liner protected the tissue from soreness, prevented the alveolar bone from residual ridge resorption and provided adequate support, stability and retention. Frequent follow-ups, occlusion equilibration, speech assessment and overall checkup were done to make the quality of patient’s life more comfortable. After 1-year follow-up patient was very comfortable and there was significant change in speech, improvement of general health and dramatic change in quality of life.

3.1 Tables and Figures

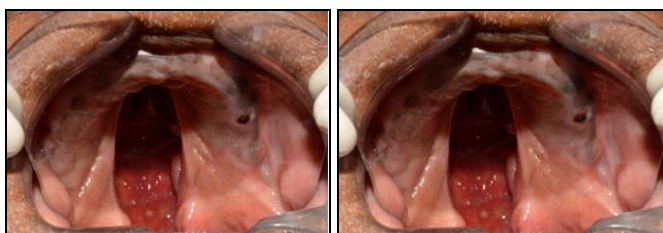


Fig 1

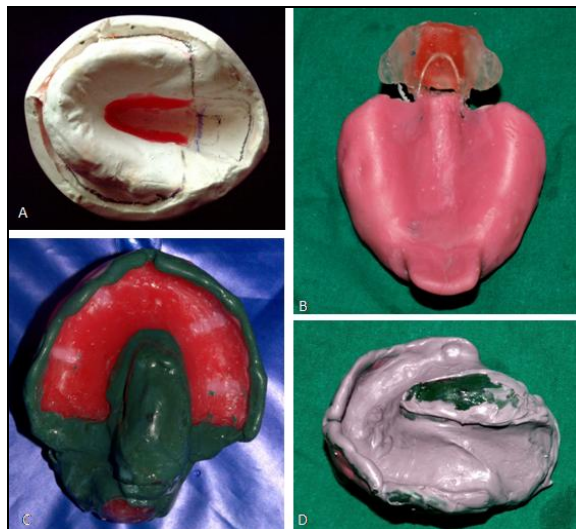


Fig 2



Fig 3



Fig 4



Fig 5

4. Conclusions

In this report, patient with Velopharyngeal insufficiency was treated successfully by velopharyngeal obturator prostheses. It is crucial to rehabilitate these patients with suitable means. It must 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. The clinician can only try to provide an alternative means for palatopharyngeal function. How successful that alternative is, will depend upon the patient's ability to accept the defect and to adopt to an alternative environment.

5. References

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