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### Case Report

# MANAGEMENT OF PARTIALLY EDENTULOUS PATIENT WITH VELOPHARYNGEAL INSUFFICIENCY– A CASE REPORT

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## ABSTRACT

The velopharynx is a vital structure as it controls speech and its resonance, sucking, whistling and swallowing. The defect in the integrity of this structure leads unintelligible speech, nasal regurgitation of the fluids, difficulty in swallowing and sucking. The difficulty in feeding has adverse effects on the general health of the patient and the unintelligibility of the speech has great psychosocial influences. The closure of the soft palate defect to control nasal emission during speech and prevent leakage of foods and liquids is usually accomplished by the fabrication of a partial denture or complete denture. The case report describes the management of a partially edentulous patient with partial mandibulectomy and velopharyngeal insufficiency using a velopharyngeal obturator.

**Keywords:** Soft Palatal Defect, Palatopharyngeal insufficiency, Velopharyngeal obturator, Mandibulectomy.

## INTRODUCTION

The Velopharynx is a space that connects the Nasopharynx and the Oropharynx. The muscles around the Velopharynx contract during swallowing, sucking, whistling and the production of specific speech sounds thereby, dynamically separating the nasal and oral cavities by closing the space. Any pathology leading to dysfunction or failure to achieve this separation impairs speech with inappropriate escape of air leading to nasality in speech and inability to properly produce specific phonemes<sup>1</sup>. Abnormal compensatory articulations as well as abnormal facial movements may also occur<sup>2,3</sup>. The Leakage of oral solids and fluids in the nasal cavity is also a common phenomenon.

The intraoral defects in hard or soft palate can either be congenital or acquired. Palatopharyngeal insufficiency is an acquired or congenital anatomic defect of the soft palate that makes incomplete closure of palatopharyngeal sphincter<sup>4</sup>. The closure of the soft palate defect to control nasal emission during speech and prevent leakage of foods and liquids is usually accomplished by the fabrication of a partial denture or complete denture. Mazaheri and Millard<sup>5</sup> set certain guidelines which should be followed for optimal restoration of functions like speech and deglutition:

- 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 secretions into the oropharynx.

The case report describes the management of a partially edentulous patient with partial mandibulectomy and velopharyngeal insufficiency.

## CASE REPORT

A 42-year old male reported to the department of Prosthodontics with a chief complaint of difficulty in having food and unintelligible speech. The history of the patient dates back to three years when the patient was diagnosed with squamous cell carcinoma of retromolar trigone region on the right side with nodal metastasis and erythroplakia of soft palate. The patient underwent surgery for the same which resulted in right partial mandibulectomy and soft palatal defect causing velopharyngeal insufficiency. On extraoral

examination, the mandible of the patient was deviated towards the right side (Figure 1).



Figure 1: Pre-Operative extraoral View

On intraoral examination, reduced mouth opening was observed. The mandible was deviating towards left side. A defect in soft palatal was evident. All the posterior teeth on the left side and canine and second premolar on right side of maxillary arch were missing (Figure 2).



Figure 2: Pre-operative Intraoral View showing soft palatal defect.

Deep bite was present due to severe attrition in the mandibular teeth (Figure 3).



Figure 3: Pre-Operative Intraoral View (Teeth in Occlusion)

The orthopantogram was advised (Figure 4). Periapical pathologies were present with respect to mandibular anterior teeth. Treatment planning was done. Fabrication of a heat cure acrylic interim prosthesis consisting of a velopharyngeal obturator was planned. The treatment plan with its advantages and disadvantages was explained to the patient and the consent was taken.



Figure 4: Pre-Operative OPG

The root canal treatment was done for the mandibular anterior teeth. The restoration of the endodontically treated teeth was done with Porcelain fused to metal crowns. The defect was packed with gauge piece and Primary impressions were made for the patient in irreversible hydrocolloid (Algitex, DPI, India) and the casts were fabricated (Figure 5).



Figure 5: Maxillary cast

A custom tray was prepared and final impression was made in medium body Polyvinylsiloxane (Reprosil, Dentsply, UK). While Recording the jaw relations, the vertical dimensions of occlusion was slightly raised to reduce the deep bite to some

extent. Care was taken to minimize the mandibular deviation towards left. This was followed by mounting on a mean value articulator, teeth arrangement and try in. The denture base and stainless steel wire clasps were sealed on the cast using modeling wax (Modelling wax ,Y-DENTS, India) and acrylisation was done(DPI Heat Cure, DPI, India).

A heat cure soft lining material (Molloplast-B, Buffalo Dental Manufacturing Co, Inc.) was used in the soft palatal defect area. After finishing and polishing the prosthesis was tried in to check the extensions of the obturator and the speech intelligibility. (Figure 6,7)



Figure 6: Finished and Polished obturator Prosthesis



Figure 7: Post-Operative Intraoral View (the prosthesis in position)

The adjustments in extensions and phonetics were done by functional impression technique using a soft liner (Viscogel, Dentsply, UK). Post- insertion instructions which were similar to the instructions given to any removable partial denture patient were given. Speech evaluation was done for the patient with and without velopharyngeal obturator. There was

improvement in the speech intelligibility and nasal regurgitation of food.

## DISCUSSION

The velopharynx is a vital structure as it controls speech and its resonance, sucking, whistling and swallowing<sup>6,7</sup>. The defect in the integrity of this structure leads unintelligible speech, nasal regurgitation of the fluids, difficulty in swallowing and sucking<sup>8</sup>. The difficulty in feeding has adverse effects on the general health of the patient and the unintelligibility of the speech has great psychosocial influences. In this case, the main aim of the treatment was to design a prosthesis for the patient which will improve speech and deglutition when awake and reduce the deviation of mandible. The prosthesis was made in the heat cure acrylic as the cast partial denture could not be fabricated for the patient because of compromised abutment teeth and limited mouth opening. The vertical dimensions of occlusion were raised within physiologic limits to reduce the severe deep bite. A heat cure soft lining material was incorporated in the defect region to prevent any sort of impingement. A self cure soft lining material was used to make adjustments in the extension of the obturator clinically as determined by functional movement and speech intelligibility. Constant recalls were maintained.

## CONCLUSION

The quality of life in a patient with soft palatal defects can be effectively improved by fabricating an obturator prosthesis.

## REFERENCES

1. Beumer J, Curtis TA, Marunick MT. Maxillofacial rehabilitation, prosthodontic and surgical considerations. Ishiyaku Euro America: St. Louis; 1996. p. 399-402.
2. Chalian VA, Drane JB, Standish SM. Maxillofacial prosthesis, Multidisciplinary practice. The Williams and Wilkins Company: 1972. p. 358-9.
3. Taylor TD. Clinical maxillofacial prosthetics. Quintessence Publishing Co, Inc. 2000: 121-131.
4. Academy of Prosthodontics: The Glossary of Prosthodontic Terms. J. Prosthet Dent 2005; 94: 10-92.
5. Mazaheri M. Prosthetics in cleft palate treatment and research. J Prosthet Dent 1964; 14: 1146-58.
6. Shetty R, Shenoy KK, Gangaiah M. Velopharyngeal obturator in partially edentulous patient. J Indian Prosthodont Soc 2009; 9: 167-170.
7. Dandekeri S, Sowmya MK, Bhandari S. A maxillofacial rehabilitation with velopharyngeal obturator prosthesis: a case report. Int J Biomed Res 2012; 3: 285-287.
8. Anadkrishna GN, Gali S. Management of Velopharyngeal Disorders. A Case Series. J Prothodont 2010; 19: 397-402.

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