

Dr. Uttam K. Sen*, **Dr. Arindam Karmakar***, **Dr. Ankan Maji***
Dr. S. L. Das**, **Dr. Satyaki Das*****, **Dr. Sanjoy Das*****, **Dr. Sourav Saha*****

Abstract

Prosthetic management of a patient with velopharyngeal defect is a challenge. In cases where surgery is not possible or where cleft palate is associated with speech distortions, the use of a velopharyngeal obturator is recommended. These defects sometimes cause hypernasality, denasality, accumulation of food, and speech distortions. Speech therapy may also be required in some cases. Individuals with cleft lip, cleft palate or velopharyngeal dysfunction or combination of all may also demonstrate above mentioned errors. Obturation attempts to re-establish velopharyngeal closure, control of nasal emission during speech, and assist in preventing nasal regurgitation of food and fluids during swallowing. This case report presents a patient having cleft of the soft palate and velopharyngeal insufficiency. Prosthetic management is done by fabrication of a velopharyngeal obturator. Our aim was to obturate the defect and assess speech related defects and recommend for speech therapy wherever needed, thus providing success to the prosthesis.

Key Words Velopharyngeal, obturator, insufficiency, speech therapy

INTRODUCTION

The velopharyngeal mechanism consists of the hard palate, soft palate, velum and the muscles at the back of throat i.e. levator velopalatini, musculus uvulae and the pharyngeal constrictors¹. The velum needs to be closed to separate the oral and nasal cavities during swallowing and production of most speech sounds. When velum is not closed due to missing structures it is called velopharyngeal insufficiency². When the structural morphology is present, but velum is unable to close the portal, it is called velopharyngeal incompetency. The treatment of velopharyngeal insufficiency is mainly surgery but when surgery is not possible and if post-surgery incompetency is present, obturator is the treatment of choice. Obturation attempts to restore the normal form and function of the desired structures. In this article a case report of a 16yrs old female patient with cleft of soft palate is treated by means of a velopharyngeal obturator.

CASE REPORT

A female student patient aged 16 years was referred to the Department of Prosthodontics, Haldia Institute of Dental Sciences And Research with a chief complaint of nasal regurgitation of food and fluids during swallowing. On examination she had a congenital anomaly of the soft palate which was diagnosed as a Veau Class-I cleft palate³ (fig1). Hypernasality during speech was also present. For her treatment a velopharyngeal obturator was planned. The entire procedure was explained to the patient and the consent was obtained

ABOUT THE AUTHORS

*Professor, **Professor & HOD, ***2nd yr. PGT
Dept. of Prosthodontics and Crown and Bridge, Haldia Institute of Dental Sciences And Research.



fig1: soft palatal defect



fig2: modified stock tray



fig3: impression made by alginate

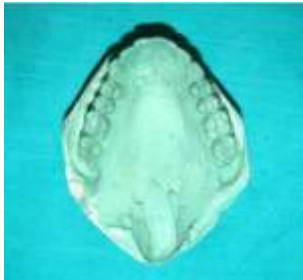


fig4: cast made with dental stone



fig5: obturator made on cast



fig6: palatal aspect of the prosthesis after relining

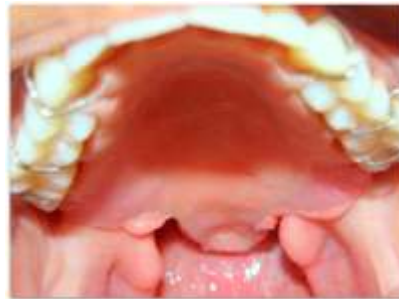


fig7: intraoral post operative photograph

PROCEDURE

A dentulous perforated stock tray was selected and modified with impression compound so that the impression compound reached the posterior pharyngeal wall (fig2). Then the defect was blocked using gauze piece and the impression was made using irreversible hydrocolloid impression material (fig3). A working cast was prepared of dental stone. Two adams clasps on the maxillary first molars and two c-clasps on the maxillary canines were prepared which acted as the retentive components of the desired prosthesis. The prosthesis was prepared by heat cured acrylic resin material (fig4). The palatal aspect of the prosthesis was relined by soft liner (fig5). This soft liner was the tissue conditioning

material "GC-reline". The patient was instructed to move her head from left, right and circular movements, swallowing and speaking the velar sounds. This was done for functional moulding of the relining material into the defect. The patient was instructed to wear it as much as possible, to read books and newspapers loudly so that she can assess her speech and correct accordingly. She was recalled after 2weeks. During the first follow up she complained of discomfort during swallowing and speech. Then the naso-endoscopy was performed and the obturator was relined accordingly. First, the L,P activity was checked and the systemic reductions were done with the help of nasoendoscopy which gives a clear view of the closure of the pharyngeal

constrictor muscles during speech and deglutition. Our goal was to restrict the closure of the obturator 2-3mm away from the posterior wall of the pharynx. If this space increased, hypernasality was found on the patient during speech. After that addition of the reliner was done which was again followed by nasoendoscopy. This procedure was repeated till the speech became acceptable. After 6 months of therapy, the patient showed successful results in speech and swallowing.

DISCUSSION

Velopharyngeal form and function is needed for normal oronasal respiration control. It also helps in swallowing, sucking, blowing etc. the patients who are not indicated for surgery are rehabilitated by obturator⁴. Obturator is meant for re-establishing the velopharyngeal closure. In case where the velopharynx hangs to the lingual, a palatal lift prosthesis may be used⁵. Impression should be made carefully and defect should always be blocked by gauze piece to prevent the flow of impression material onto nose^{6,7}. The tray should be underloaded in the area of defect to prevent nasal flow if the gauge piece is not used for blocking the defect⁶. The position and level of the obturator in the nasopharynx is determined by the position of movement of the residual velopharyngeal mechanism. The posterior aspect of the obturator should be 2-3mm short of the posterior pharyngeal wall⁷. There are some limitations of this prosthesis⁷. Success of the prosthesis depends upon patient's adaptability and learning skills. The patient should also be well motivated as the procedure will have increased number of visits. The speech should be assessed well and the obturator should be relined every month due to increased muscular activity.

CONCLUSION

Prosthetic treatment in combination with speech therapy should be the ideal treatment of choice in velopharyngeal incompetency and insufficiency. For effective obturation of the velopharynx, the defect should be precisely recorded. Combination of speech therapy along with the prosthesis can definitely improve the quality of life of the patient. In these kind of cases, a prosthodontist and a speech therapist can work together as a team to produce more significant outcome.

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