

CASE REPORT

Prosthodontic Rehabilitation of an Edentulous Patient with One Piece Hollow Bulb Obturator: A Case Report

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Introduction

Glossary of Prosthodontic terms defines obturator as “prosthesis used to close a congenital or an acquired tissue opening, primarily of hard palate or contiguous alveolar structures.”¹ The size and shape of the palatal defect will have a significant influence on the speech, mastication and esthetics. Rehabilitation of these defects with an obturator is a predictable intervention as it creates an anatomical barrier which facilitates restoration of function such as deglutition, mastication, speech, and esthetics. Weight of the obturator is always an area of concern for the dentist as it jeopardizes the retention of the prosthesis especially in case of edentulous patients as there are no natural teeth to take support from. Reduction in the weight of the obturator is attained by hollowing the prosthesis which optimizes retention and stability and also increases the patient comfort.

A B S T R A C T

A prosthesis used to close a palatal defect in dentulous or edentulous mouth is correctly referred to as an obturator. Palatal defects of any extent cause plethora of problems affecting speech, mastication and esthetics. Palatal obturator is a predictable intervention for rehabilitation and restoration of esthetics and functions in such cases. A light weight hollow obturator optimizes retention and stability as well as provides patient comfort. This case report describes the simplified technique for fabrication of a hollow bulb obturator for a completely edentulous patient who had undergone wide excision and partial alveolar resection sequel to management of squamous cell carcinoma.

Key Words: *Hollow bulb obturator, Palatal defect*

By fabricating a hollow maxillary obturator, the weight of the prosthesis may be reduced by upto 33%.²

Hollow obturators can be either open or closed. Although open hollow obturators are easy to clean, these types of prosthesis often collect moisture and require frequent cleaning and placement of a vent to eliminate the collection of moisture in the hollow section. Closed obturators have the advantage of eliminating the pooling of moisture while extending superiorly into the defect and reducing the air space.³ This case report describes the fabrication of hollow bulb obturator for rehabilitation of a patient who had undergone wide excision and partial alveolar resection sequel to squamous cell carcinoma using a simplified technique.

Case Report

A 65 year old completely edentulous female patient reported to the dental department of Metro Hospital, Faridabad for the construction of an oral prosthesis to correct an acquired palatal defect created by surgical intervention. Patient's medical history revealed that patient had undergone surgery two years back along with radiation therapy for management of squamous cell carcinoma. On examination, the defect was found to be extending from the right buccal mucosa to the mid palatine region medially and anteriorly from the canine region to the posterior hard palate involving some part of the soft palate as well (Fig 1).



Fig 1 Pre-operative

The patient complained of nasal twang along with difficulty in speech and deglutition and compromised esthetics. Owing to such unfavourable conditions, it was necessary to plan a prosthesis that would be light in weight and easy to wear while fulfilling patient's expectations. The weight of the prosthesis could jeopardize the health of the tissues and compromise the function of the prosthesis. A thorough medical and dental history was obtained and it was decided to fabricate a hollow one piece close obturator. The patient was educated and prepared psychologically for the same before starting the procedure. A primary impression was made using irreversible hydrocolloid impression material (Zelgan Plus, Dentsply) and a cast was poured with the dental stone (Type III). Special trays were fabricated on these casts using acrylic resin (DPI cold cure). Proper border moulding was done on the non-defect side of the denture by following the conventional method of denture fabrication. A final impression of the defect area was made in putty while a wash impression was made with light viscosity rubber base impression material (Affinis, Coltene Whaledent) and the master cast was obtained (Fig 2). The undercuts on the sides of

the defect and internal part of the cavity were blocked with wax before fabricating the acrylic record base.



Fig 2. Final Impression



Fig3. Final prosthesis



Fig 4 Hollow maxillary obturator

Jaw relation was recorded using conventional method as tracers couldn't be used due to lack of resistance base. Teeth selection and arrangement was done following the basic principles of esthetics. Investing and dewaxing was carried out after doing the wax-up try-in in the patients oral cavity. Separating medium was applied using camel hair brush on both upper and lower member of the flask. The

upper member of the flask was holding the teeth and lower member of the flask was holding the defect. The defect (lower member of the flask) was lined with 2 mm thick layer of heat cure resin (DPI). Centre of the defect was then filled with table salt to fill the concavity created. Another 2 mm thick layer of heat cure was placed on top of it.



Fig 5. Post-operative

The mould was packed with heat cure resin material in the usual manner and then processed as per manufacturer's specifications. Following deflasking, a hole was drilled in the superior surface of the obturator using a number 8 bur (Fig 3). Salt was drained out using a water jet and the hole created was sealed using auto-polymerizing acrylic resin (DPI). The prosthesis was finished and was inserted intra-orally to verify its fit (Fig 4,5).

Discussion

Prosthetic rehabilitation of an acquired palatal defect is a challenging procedure that requires multidisciplinary approach to achieve an acceptable functional and esthetic outcome. Factors that affect the prosthetic prognosis of

such patients are the size of the defect, number of remaining teeth, amount of remaining bone structure, quality of existing mucosa, radiation therapy and patient's own ability to adapt to the prosthesis.⁴

For completely edentulous patients, the surgical procedure usually results in poor prosthetic prognosis because of inadequate denture bearing area, lack of cross arch stabilization, and lack of structure for denture retention. A hollow bulb obturator is a better choice, as it is lighter in weight and more hygienic. Several techniques have been advocated in the fabrication of hollow obturators. Controlling the thickness of the hollow obturator walls is important to provide adequate strength and weight of the prosthesis. Materials such as ice⁵, sugar⁶ and putty⁷ have been used in the defect portion during processing and then removed through holes after processing.

This case report describes the fabrication of hollow bulb obturator using salt to fill the defect. The advantage of using salt as filling material in the defect is its easy retrievability post acrylization through the vent created in the obturator.⁸

Conclusion

Thorough knowledge and skills coupled with better understanding of the needs of the patient enable the successful rehabilitation of patients with congenital or acquired palatal defects. A simplified method of fabricating a hollow light weight obturator has been presented. Hollow

bulb obturators enhance the retention, mastication, speech and esthetics in the post-operative period providing a functional solution to the compromised state of the patient.

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