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CLINICAL CASE REPORT

Prosthodontics Management of Maxillectomy Patient with an Obturator: A Case Report

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ABSTRACT

Fungal infections exhibit a spectrum of severity, ranging from relatively minor cases to more severe and notorious ones. In most instances, the treatment approach for these infections involves the use of antifungal medications, which are specifically designed to combat the fungal organismsfungal organisms such as candidiasis, aspergillosis, mucormycosis or zygomycosis responsible for the infection. One of the concerning aspects of these infections is their impact on intraoral health. They can cause painful white sores, oral thrush.. Fungal infections can also lead to extensive damage within the oral cavity, affecting not only mucous membrane but also underlying structures. Intraoral defects created by such infections are extensive and causes potential morbidity. To address the maxillary defect resulting from these infections, the primary method of restoration is through the use of removable prosthesis. Palatal obturators are typically short-term prosthetics used to close such defects of the hard/soft palate that may affect speech production or cause nasal regurgitation during feeding . This case vividly illustrates the importance of a personalized approach to prosthetic rehabilitation in patients with partial maxillectomy, taking into account the specificities of each case and highlighting the necessity of interdisciplinary collaboration to achieve satisfactory outcomes.

Keywords: mucormycosis, maxillectomy, obturator, palatal defect

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INTRODUCTION

Mucormycosis is one of the most common fungal infections, which affects the maxilla, especially in diabetes and immunocompromised patients.

The surgical treatment for such patients is partial maxillectomy, subtotal maxillectomy, or total maxillectomy. A maxillectomy is an ablative surgical procedure where a portion or the entire maxilla is removed, causing a significant gap that connects nasal and oral cavity.[1] The defect may be in the form of a small opening resulting in communication from the oral cavity into the maxillary sinus, or it may include a portion of the hard and soft palate, alveolar ridge, and the floor of the nasal cavity which may cause several problems including speech, swallowing, and mastication difficulties.[2]

Traditionally, rehabilitation with a palatal obturator has been the most common approach for treating maxillectomy defects. The advantages of this technique include a shorter operative time, shorter postoperative hospital stay, and complete visualization of the maxillectomy cavity, which simplifies oncologic surveillance.

The most significant benefit of using this approach is reduced cost, the potential to avoid or eliminate the need for additional surgery to close the defect. Additionally, it allows for the immediate restoration of facial appearance and oral function, which is crucial, not to mention the simplified clinical examination of the surgical site for early detection of signs of malignancy recurrence.[3] Disadvantages of prosthetic obturation include nasal leakage, cleaning, and constant prosthetic refinement.[4]

CASE REPORT

A 45-years-old female patient was referred to the department of Prosthodontics at Altamash Institute of Dental Medicine in March 2023, presenting with an intraoral defect [Fig 1 and 2]. She gave a history of fungal infection that was acquired 2 years back. No history of any predisposing factor was ruled out, so the cause of developing infection and recurrence remains unknown.

Patient complained of intraoral maxillary defect because of which she faced difficulty in chewing, swallowing, and speech. Extraoral examination revealed ovoid facial appearance with depressed philtrum. Intraoral examination revealed Edentulous maxillary arch with central maxillary defect. The lower arch was intact with all the teeth present.

Figure 1: showing maxillary defect

The patient got her maxillectomy done 1 year back and she was wearing interim obturator since then. After 10 days of surgery interim obturator was given to the patient.

Figure 2: Showing palatal defect covered with the gauze before taking impressions

Soft tissue lining was done on interim obturator for lubrication to the defect and to prevent further trauma to the defect. Patient was called on follow-up visits to renew soft tissue liner every month .She wanted to get it replaced by a definitive obturator with better retention and stability. The goal of our treatment was to make an intraoral prosthesis to close the maxillary defect and to help facilitate the patient in swallowing and speech. Primary impression was made by using Alginate, [Fig 3] whereas the defect was closed with the help of gauze [Fig. 2]. The impression was then poured in the dental stone. After fabricating the custom tray with self-cure acrylic,[Fig 4] secondary impression was taken. Green stick compound was used

Figure 3: Showing definitive obturator primary impression was taken with alginate in an edentulous stock tray after closing the defect undercut with a piece of gauze

Figure 4: Custom tray fabrication was done with self-cure acrylic

Figure 5: Showing 'Green stick impression compound' was used for border moulding and recording of defect. Wash impression was taken with 'Zinc-oxide eugenol

Figure 6: showing beading and boxing

Figure 6: showing articulation after jaw record

Figure 7: Showing Trial Denture

Figure 8: showing intraoral view after final obturator insertion

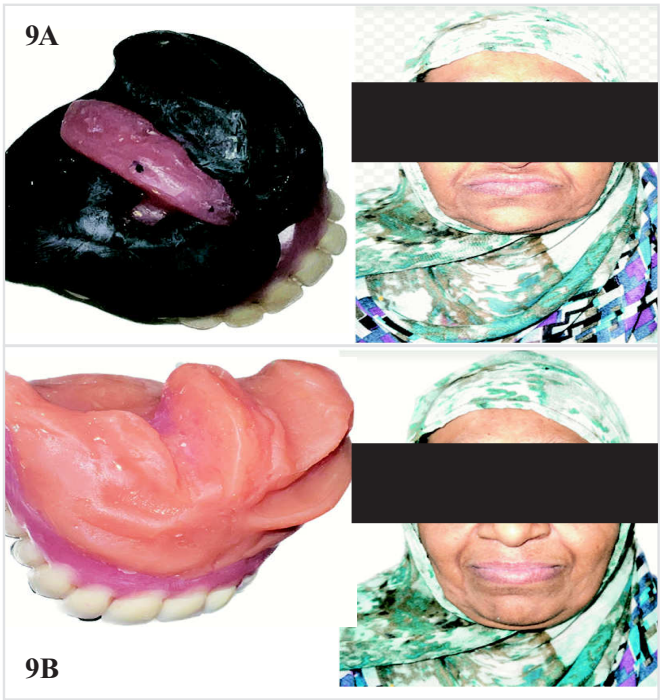

Figure 9A: Showing impression for permanent soft tissue lining; green stick compound and compound cake were mixed together to take the impression. PERMANENT SOFT LINING was done to enhance the retention **9B**; Final obturator after Relining

to record the borders and the defect. Wash impression was taken with Zinc Oxide Eugenol. [Fig 5] Denture base construction was done on master cast followed by maxillomandibular relation. [Fig 6]. After try-in prosthesis was processed in conventional manner. [Fig 7 and 8]. Adjustments were done on insertion visit and patient was called on follow-up after 1 week.

To provide the patient masticatory and mucosal comfort permanent soft lining was done by taking impression with green stick on final obturator as shown in the figure. This was done on 1 month follow-up visit.[Fig 9]

DISCUSSION

In recent years, increasing attention has been paid to quality of life research in oncology. Psychological well-being and the patients's vitality are increasingly contributing to the evaluation of therapeutical success. The present study investigated the quality of life of patients with maxillofacial defects after prosthodontic therapy with obturator prostheses. Despite intensive research regarding the quality of life after cancer therapy, few publications focus on maxillectomy patients.

Numerous methods and techniques are advocated in the literature: open or closed, hollow or solid bulb obturator fabrication. The technique employed in the present case was fabrication of hollow bulb prosthesis using conventional method which is different from lost salt technique and use of magnet.[5,6] Thus, satisfactory functional and esthetic results can be achieved in patients with maxillary defects using obturator prostheses. The removable nature of the prostheses permits for the inspection of the surgical site for any evidence of recurrence of disease.

CONCLUSION

The technique described in the present case report proved to be simple, quick and cost effective method for construction of a closed hollow bulb obturator prostheses for acquired maxillary defects using readily available materials. The obturator delivered to the patient increased function by providing better masticatory efficiency, phonetics by adding resonance, and also improved the esthetics.

Authors Contribution

AS: Contributed to study design, methodology, data collection, data analysis, manuscript drafting, critical

revision, and final approval of the manuscript. Ensured the accuracy and integrity of the research.
MSA: Performed the procedure, contributed to study supervision, manuscript drafting, critical revision, and provided final approval of the manuscript.

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Informed consent was obtained from all subjects involved in the study.

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Some content in the introduction section provided in this document are paraphrased using Quill Bot for rephrasing purpose. While all effort have been made to ensure the quality and coherence of the text. Additionally, a few transcripts of focused group discussions held during Zoom meetings were generated using OTTERAI. Some themes, codes and categories were generated using OPEN AI CHATGPT 3.5. While all effort have been made to ensure the quality and coherence of the text and the generated themes, codes and categories. All statements in the manuscript-reporting hypothesis, interpretation, results, conclusions, implications and limitations of the study represent the authors' own ideas and thoughts.

Availability of data and materials
The data supporting this study's fundings are available from the corresponding author upon reasonable request.

Consent for publication
Written informed consent was obtained from the patient for the publication of this case report, including all associated images and clinical data.

Conflict of interest
The authors report no conflict of interest.

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