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Interim obturator in maxillectomy patient

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Abstract

Maxillary defects resulting from surgical interventions often necessitate the use of interim obturators to restore facial aesthetics, speech intelligibility, and masticatory function. This study presents a novel approach utilizing an extraoral interim obturator for patients with extensive maxillary defects post-maxillectomy. The design incorporates a custom-fit prosthesis that adheres externally, minimizing discomfort and enhancing patient compliance during the healing phase. Clinical evaluation of this technique demonstrates significant improvements in functional outcomes and patient satisfaction compared to traditional intraoral obturators. The extraoral obturator proves to be a viable interim solution, offering a balance between effectiveness and ease of use in managing maxillectomy defects.

Keywords: Interim obturator, maxillectomy patient, speech intelligibility, masticatory function

Introduction

The anatomical structures of the hard and soft palate play a crucial role in speech and swallowing. When these structures require removal due to lesions, their absence or impairment can lead to disability. Surgical resection creates a gap that requires temporary management, often delaying definitive treatment to accommodate chemotherapy and radiotherapy. Managing patients with deficient oral and extraoral structures on an interim basis is complex. While surgical closure of the defect is the primary option, it can only occur after adequate healing and confirmation of lesion absence. During this interim period, open communication between the nasal and oral cavities limits function. The loss of swallowing function, speech clarity, and aesthetics significantly impacts the patient's psychosocial well-being. Various techniques and materials for constructing an obturator are utilized, and different methods of retaining the prosthesis have been explored. The decision on how to retain the interim prosthesis is challenging, especially considering soft tissue healing post-surgery. The following case reports explore a conservative approach to retaining an interim prosthesis, aiding functional rehabilitation without nasal regurgitation.

Case report 1

1. A 64-year-old female patient reported to the department of prosthodontics and crown and bridge with a chief complaint of pus discharge and mobility in the left upper alveolar region.
2. The patient was alright 2 years back when she was diagnosed with COVID-19 the patient had undergone palliative treatment for the same.
3. Six months back patient started experiencing foul smell, mobile dentoalveolar segment and pus discharge in the maxillary region of 23,24 and 25.
4. The patient reported to the hospital 1 month back and was diagnosed with post mucormycosis osteomyelitis.
5. The patient also had history of diabetes since 10 years and was under medication for the same.
6. Extraoral photographs (Figure 1) shows facial asymmetry and no pain on palpation.
7. Intraoral photographs (Figure 2) shows missing 17, 23, 24, 25 and 27. Bare bone seen with 26 and mid-palatine area. Mobile dent alveolar fragment with the left maxilla was noted. Root piece with 36 and 37 was noted.
8. The patient's CT scan reports were evaluated on CT scan showed involvement of left

- maxilla and the pterygoid region and inferior bilateral maxillectomy was planned.
9. An surgical obturator was planned to help prevent post-surgical oral contamination regurgitation.
 10. In the absence of an intraoral supporting and retentive structure, it was decided to retain the obturator utilizing extraoral aids to address the functional needs of the patients.
 11. Intraoral photograph (Figure 3) recorded 15 days post-surgery shows white slough in the defect area along with suture material residue.
 12. A acrylic plate was fabricated (Figure 4) and was used as a custom-made tray to make a maxillary impression.
 13. A maxillary impression was made with an irreversible hydrocolloid (Figure 5).
 14. The impressions were poured in gypsum type III material (Figure 6).
 15. A facebow showing inner bow and outer bow was used for extra oral retention (Figure 8).
 16. Acrylic plate was fabricated with the bite blocks for attachment of inner bow of the face bow, the acrylic plate was lined with soft liner to reduce tissue trauma (fig.7).
 17. Facebow (customized) the inner bow was tried inside patients mouth and adjusted accordingly, outer bow of the face bow was adjusted according to patients facial feature. The inner was later than attached to the acrylic plate using bite blocks and was placed inside the patient's mouth (Figure 10).

18. Post operative instructions were given to the patient and the relatives and patients is kept on follow up for 1 week, 1one month and 3 month and definitive prosthesis was planned after 6 month



Fig 1: Extraoral photograph (pre-operative)



Fig 2: Intraoral photograph (pre-operative)



Fig 3: Intraoral photograph (15 days post-operative)

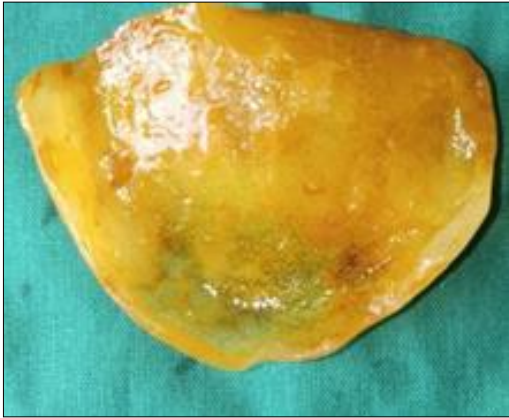


Fig 4: Custom tray



Fig 5: Irreversible hydrocolloid impression



Fig 6: Master cast poured in type III Gypsum



Fig 7: Clear acrylic plate with bite block



Fig 9: Acrylic plate with the facebow



Fig 8: Facebow with inner and outer bow



Fig 10: Plate inserted in patients mouth



Fig 11: Extraoral photographs

Case report 2

1. A 32 year old male patient reported to the department of Prosthodontics and crown and Bridge after undergoing subtotal maxillectomy 15 days back.
2. Patient was diagnosed with COVID-19 4 years back and was treated for the same.
3. Patient was alright 6 months back when he started noticing pus discharge in the left region of upper jaw
4. Patients reported to surgical department and was diagnosed with mucormycosis
5. Patient CT scan was assed and total maxillectomy was performed.
6. Patient reported to the department of prosthodontics department for an interim obturator.
7. Treatment plan: An interim obturator was designed to prevent contamination of the oral cavity following surgery. Due to the absence of intraoral supporting and

- retentive structures, the obturator was retained using extraoral aids to meet functional requirements. Intraoral photograph (Figure 13), taken 15 days post-surgery, shows complete healing of the surgical site with a visible nasogastric tube.
8. A custom-made tray was fabricated as a plate for making a maxillary impression. The impression was taken using irreversible hydrocolloid, and gypsum type III material was used to pour the impressions.
9. For extraoral retention, a facebow with inner and outer bows was employed. An acrylic plate was fabricated with bite blocks to attach the inner bow of the facebow (Figure 14).
10. The customized facebow, attached to the acrylic plate, was placed intraorally. An extraoral photograph shows the facebow and acrylic plate attached to the extraoral headgear (Figure 15).



Fig 13: Intraoral photograph (15 days post-operative)

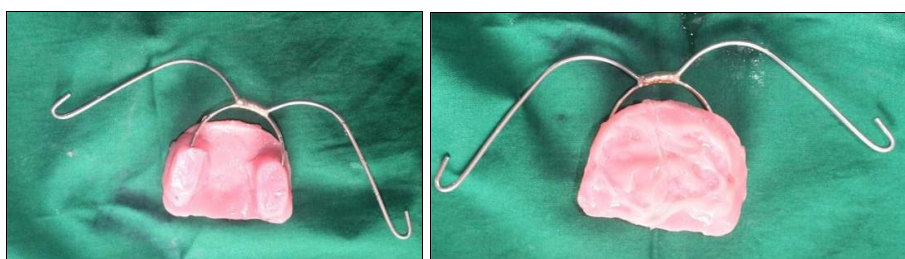


Fig 14: Acrylic plate with facebow



Fig 15: Extraoral photograph (15 days post-operative)

Discussion

Various types of obturators with different designs are crucial in rehabilitation. Recent advancements include hollow bulb obturators, sectional obturators, and CAD/CAM designed obturators. Sectional obturators are specifically used in cases with limited mouth opening [2]. Hollow obturators are typically restricted to definitive prosthesis cases [3, 4, 5], although there have been reports of their use as interim prostheses. Designs such as hollow obturators with lids and inflatable obturators are among those employed [5]. Chalion described a method for duplicating existing palatal and tooth forms to achieve more comfortable and aesthetic results, offering an alternative for interim prosthesis fabrication [6, 7]. Recently, interim obturators have been designed using CAD/CAM and rapid prototyping techniques [8, 9], considering healing periods and favoring simpler designs that are less invasive and time-consuming, with retentive methods that do not interfere with healing.

Acrylic resins are commonly used materials for interim obturator fabrication, chosen for their simplicity and economy. These interim obturators serve as substitutes until a definitive prosthesis or reconstruction can be planned. Different types of acrylic resins, including microwave-cured, light-cured, and heat-cured resins, have been utilized [10, 11]. Silicones, although flexible, are generally not preferred due to their higher cost compared to acrylics, despite occasional reports of their use [12].

The retention method for maxillofacial prostheses remains a challenge. Techniques for retaining interim prostheses include circumferential wiring, suturing, clasps, and magnets [13]. While implants offer promising results, they are more commonly used for retaining definitive prostheses, with only a few cases reported for interim prostheses. No gold standard method for interim obturator retention is recommended in the literature. Extraoral devices like spectacles have been used for retention, though their efficiency does not match that of implants [14]. Denture duplicators have also been employed for stabilizing prostheses, but evidence supporting their success is lacking [15]. Patient satisfaction with obturators depends largely on retention and stability, which contribute to comfort and acceptance.

Conclusion

The selection of an interim prosthesis depends upon the

surgical scope and the functional requirements of the patient. In the post-surgery healing period, it is essential to opt for a straightforward design and a reliable retention method that adequately meets the patient's needs. The success of the intervention hinges on the acceptance and comfort of the patients. Therefore, the prosthesis must be tailored or crafted to cater to the specific requirements of each individual patient.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Liu L, Liu D, Guo Q, Shen B. Quality of life in advanced maxillary sinus cancer after radical versus conservative maxillectomy. *J Craniofac Surg*. 2013;24:1368–72.
2. Popli S, Parkash H, Bhargava A, Gupta S, Bablani D, Kar AK. A two-piece sectional interim obturator. A clinical report. *J Prosthodont*. 2012;21:487–90.
3. Habib BH, Driscoll CF. Fabrication of a closed hollow obturator. *J Prosthet Dent*. 2004;91:383–5.
4. Wu YL, Schaaf NG. Comparison of weight reduction in different designs of solid and hollow obturator prostheses. *J Prosthet Dent*. 1989;62:214–7.
5. Shimizu H, Yoshida K, Mori N, Takahashi Y. An alternative procedure for fabricating a hollow interim obturator for a partial maxillectomy patient. *J Prosthodont*. 2009;18:276–8.
6. Kouyoumdjian JH, Chalian VA. An interim obturator prosthesis with duplicated teeth and palate. *J Prosthet Dent*. 1984;52:560–2.
7. Haraguchi M, Mukohyama H, Taniguchi H. A simple method of fabricating an interim obturator prosthesis by duplicating the existing teeth and palatal form. *J Prosthet Dent*. 2006;95:469–72.
8. Jiao T, Zhu C, Dong X, Gu X. Rehabilitation of maxillectomy defects with obturator prostheses fabricated using computer-aided design and rapid prototyping: A pilot study. *Int J Prosthodont*. 2014;27:480–6.
9. Kim MS, Lee JY, Shin SW. Fabricating an obturator using rapid prototyping to design the framework: A case

- report. *Int J Prosthodont.* 2014;27:439–41.
10. AlKhatib MB, McKinstry RE. Construction of an interim obturator using a microwave- polymerized denture base resin. *Int J Prosthodont.* 1991;4:524–8.
 11. DaBreo EL. A light-cured interim obturator prosthesis. A clinical report. *J Prosthet Dent.* 1990;63:371–3.
 12. Sharon-Buller A, Sela M. Provisional silicone obturator for closure of hard and soft palatal defects. *Refuat Hapeh Vehashinayim.* 2005;22:56–9. 91.
 13. Federick DR. A magnetically retained interim maxillary obturator. *J Prosthet Dent.* 1976;36:671–5
 14. Aponte-Wesson R, Carroll W, Waite P, Seidenfaden JC. Interim obturator retained by an extraoral device: A clinical report. *J Prosthodont.* 2008;17:582–5.
 15. Kaplan P. Stabilization of an interim obturator prosthesis using a denture duplicator. *J Prosthet Dent.* 1992;67:377–9.

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