

Rehabilitation of Intraoral Maxillofacial Defect with an Interim Obturator: A Case Report

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ABSTRACT

Rhinomucormycosis is a fungal infection caused by Mucorales. There are several form of mucormycosis but most common is the infection of oral cavity. One important key feature of Rhinomucormycosis is invasion into blood vessels, which forms blood clots and surrounding tissue death occurs due to loss of blood supply. The most common intraoral defects are mainly seen in maxilla in the form of their extension into maxillary sinus or nasopharynx. Rehabilitation after surgical resection of maxillary area is often challenging task for Maxillofacial Prosthodontist. Communication between nasal and oral cavity causes difficulty in swallowing, speech, and gives unesthetic appearance. The main objective in each intra oral maxillofacial case is to restore vital functions. Palatal obturator is the treatment modality for such type of patients which covers the defect and helps in improvement of vital functions. This case report describes the rehabilitation of partially edentulous maxillary arch with extension of palatal defect treated with Interim Maxillary Obturator, for the interim time period before patient opted for definitive treatment as surgical correction.

KEYWORDS: Maxillofacial Prosthesis, Obturator, Palatal Defects, Interim Maxillary Obturator

INTRODUCTION

Humans need for the artificial replacements of missing teeth and other parts of body has always been challenging task for any health care provider. Maxillo-facial rehabilitation with the help of prosthesis is an important contribution by the prosthodontist in the field of dentistry to the humanity. AMBROSE PARE a French surgeon treated palatal perforations using an “obturator”. He was the first person to fabricate an obturator. Such defects can be congenital or in born like cleft-palate or acquired because of trauma or surgery.¹ Rhinomucormycosis is a rare opportunistic infection caused by Mucorales.

These patients face many problems like difficulties in deglutition, impaired articulation, nasal regurgitation and disfigurement of face. Successful rehabilitation of esthetics and function in a patient with gross anatomic intraoral defects is a challenging task for the prosthodontist. Such patients need to be treated otherwise they will become psychologically dependent. During the fabrication of maxillofacial prosthesis, basic prosthodontic principles should be followed while taking extreme care of unsupported and resilient tissues. The defect, along with the remaining structures should be covered to obtain adequate support, stability, and retention to the prosthesis.²

Obturator is a prosthesis used to close a congenital or acquired tissue opening, primarily of hard palate and/or contiguous alveolar/soft tissue structures (GPT-8). Principal function of an oral obturator is closure of palatal

defects for establishment of oro-nasal integrity. Fabrication of obturator requires biologically inert, technically simple and durable materials.

Many newer materials like silicone obturators and implant-supported prosthesis can be utilized for prosthetic rehabilitation of intraoral defects but heat cured acrylic obturators are still treatment of choice of treatment because of several advantages.

This case report is about the laboratory and clinical management of Rhinomucormycosis patient with Interim Maxillary Obturator made with heat cured acrylic.

CASE REPORT

A 22 years old female patient came to the Department of Prosthodontics and Crown & Bridge, KMSDCH, Vadodara with chief complaint of difficulty in speech due to missing upper anterior teeth and poor esthetics. By profession being a teacher she was more conscious about her esthetics and speech. Patient was referred from Oral surgery Department to our Department after surgical resection of palatal area and its extension in nasal cavity. On OPD examination patient was diagnosed and positive findings were recorded. Patient had partially edentulous upper arch with oro-nasal communication with missing teeth 11, 12, 21. (Figure-1) Mandibular movement was found within normal range and tongue movement was also normal. There was no supraeruption of any teeth. Patient had calculus present but there was no evidence of

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stains, mobility or recession of remaining teeth. On extraoral examination deviated nasal septum and loss of fullness of upper lip was found due to loss of upper anterior teeth. Patient had difficulty in speech and pronunciation of certain words. According to MM House's classification patient was classified as Philosophic.



Figure -1 Intraoral view

According to Armani's⁴ classification for maxillary defect, it was classified under class six and it is very rarely seen. Obturator is derived from the Latin verb "obturare" which means close or to shut off. Patient was planned for prosthetic rehabilitation with Interim Obturator with minimum extension into defect area until surgical closure was performed

CLINICAL PROCEDURE

1. Preliminary Impressions (Figure-2): Preliminary impressions of upper and lower arch were recorded with irreversible hydrocolloid impression material (Imprint, DPI, Mumbai) with metal stock perforated trays. Impressions were poured with type-III dental stone and casts were obtained. (Figure-3)



Figure-2 Primary impressions

2. Block Out of Defect: Block out of the defect was done with type-II dental plaster (Kalabhai Karson Mumbai, India). (Figure- 4)

3. Fabrication of Base Plate and Try-In Procedure: Approximately 5-7cm of area was left from top of the palatal defect to prevent seepage of oral fluid and better adaptation of the final prosthesis. After this separating medium (Safe plus could mould seal, Neelkanth Health Care) was used and denture base with extension in the defect was made with self cured acrylic resin (DPI, RR, Mumbai, India) with sprinkle on method. Occlusal rims were made with modeling wax (DPI modeling wax, Mumbai, India) in edentulous area for bite registration.



Figure-3 Maxillary and Mandibular cast



Figure-4 Block out of maxillary defect

After bite registration mounting was done on mean value articulator (Jabbar & company, Aligarh, U.P., India) followed by selection of appropriate shade of teeth. Teeth arrangement was done and Try-In procedure was followed. In Try-In procedure adaptation of trial denture, phonetics, esthetics, overjet, overbite, occlusion was checked (Figure-5). After Try-In procedure proper wax up was done and clasps were made on bilateral first molar teeth for retention of the final prosthesis.



Figure-5 Try-In

4. Fabrication Of Obturator: Conventional compression molding technique was used for fabrication of obturator. It was made up of heat cured acrylic resin (DPI, Batch No.-1081, 1083, Mumbai, India). (Figure-6A, 6B) Post insertion oral hygiene maintenance instruction were given as well as patient was instructed how to clean obturator. After insertion routine follow up was done time to time.



Figure-6A Obturator Insertion (front view)



Figure-6B Obturator Insertion (lateral view)

The prosthesis was examined for speech, comfort, retention, and esthetics.(Figure 7) The patient was taught to insert and remove the prosthesis. After insertion of prostheses mastication, deglutition, esthetics and phonetics were improved. The first follow-up was performed after 24 hours. The patient was fully satisfied with the final prosthesis.(Figure 8)



Figure-7 Obturator



Figure-8 Pre and Post operative lateral view of face for difference in lip fullness

DISCUSSION

The present case report describes a method for rehabilitation of Class VI maxillary defect with an interim heat cured acrylic obturator. The prosthetic rehabilitation of such defects gives you an option of restoring esthetics and function by a non-invasive method.

Other than acrylic, silicone is the material of choice for the fabrication of obturator. Silicone elastomers can be mainly of: Room temperature vulcanizing (RTV) or High Temperature Vulcanizing (HTV). Silicone elastomers are resilient but it has several disadvantages like they are costly, need special technical manpower and not easily available. Room temperature vulcanizing silicone readily picks up odour. But they are not universally accepted as they have life less appearance and poor tear strength. Hence heat cured acrylic resins are routinely used for construction of obturators.⁵ Acrylic resin is available easily, easy to color and stain, has good strength to be fabricated with feather margin and has shelf life of about 2 years. They are simple, non-invasive, cost-effective and allow for periodic examination and cleaning. In this case one of the main reason for not using silicone was, as patient already was suffering from Rhinomucormycosis, silicone may further enhance the fungal growth. Thus, material of choice for this type of patient was heat cured acrylic resin as interim treatment material.

Mucormycosis is an acute opportunistic infection caused by a saprophytic fungus that belongs to the class of Phycomycetes. It mainly occurs in immune compromised patients but can occur in healthy individual as well.⁶ It usually starts from the nasal cavity spreads to the sinus and then to the orbit. It invades the blood vessels and spreads through them. In the present case the infection started from the hard palate and extended to the nasal cavity. If an extension is not given obturator should be relined with soft liners. However, soft liners may lead to addition of fungal growth⁷ which is not acceptable in this case hence soft liner was not used. Only three anterior teeth were missing, the retention of the obturator was not a problem.

Desjardins⁸, reported the problems faced by the patient immediately following maxillary resection such as inability to speak, difficulty in deglutition, nasal reflux, aesthetic impairment, psychologic disturbance. The design of the obturator was done keeping in mind the Aramany's class VI design.⁹ However number of teeth missing was less and due to mucormycosis a simplified design was planned for this case. In the present case general health of the patient was good and she adjusted well with interim obturator..

CONCLUSION

Patients with such a defect suffer from a lot of psychological trauma due to impaired functions and aesthetics. Hence, we as prosthodontists should try to

restore the lost form and function of the oral and peri-oral structures that will help the patient to live a normal life. Prosthetic rehabilitation will improve patient's social life and restores aesthetics, functions & also boosts patients morale. In the present case patient who was a teacher by profession had really faced lots of difficulties in speech and esthetics after the surgery. Once the interim prosthesis was delivered improvement in speech, esthetics & function had positively affected her personal as well as professional life.

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