



Prosthetic Restoration Of Mucormycosis Patient: A Case Report

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Abstract

Introduction: In this case study, we present the rehabilitation of a maxillary deformity following Mucormycosis surgery caused by Covid-19. Mucormycosis is a severe infection, making early detection crucial. Contrarily, Covid-19 may cause a wide range of unexplained signs and symptoms. These findings might apply to other infections as well.

Clinical Discussion: The rehabilitation of maxillofacial abnormalities is the most difficult and renowned field in prosthodontics. Acquired maxillofacial abnormalities are frequently caused by head and neck tumors. The patient is more likely to experience hypernasal speech, fluid leaks into the nasal cavity, poor masticatory function, and cosmetic deformities as a result of the surgery. The rehabilitation of a mucormycosis-related maxilla that had to be resected is the subject of the current article's clinical case report.

Conclusion: The rehabilitation of resected maxillofacial abnormalities involves prosthodontist intervention in a substantial way. This enhances not just the functionality but also the standard of living.

Keywords: Rehabilitation, obturator, maxillary defects

Introduction

The ongoing covid-19 pandemic is leaving many post covid complications. These may or may not be associated with living disease. The manifestations of this illness were incredibly diverse, including asymptomatic disease, pneumonia, and acute respiratory distress syndrome (ARDS). Covid-19 may be linked to many bacterial and fungal infections.¹A rare but deadly angio-invasion fungal illness called mucormycosis has a potentially high fatality rate.²

Treatment of Mucormycosis may include the resection of major orofacial tissues. Such patients may present with difficulty in speech, mastication, swallowing, and poor aesthetics. To overcome such problems, obturator prostheses are provided. Patients

with acquired maxillary defects differ from those with congenital defects because of the abrupt alteration in physiologic processes associated with surgical resection of the maxillae. However, definitive prosthodontic treatment will restore the patient to a normal or near normal level of function. This case report discussed Mucormycosis following recovery from Covid-19 in a patient with type II diabetes, hypertension and metabolic risk factors.²

Case presentation

A 65 years old male patient was referred to the Department of Prosthodontics, for oral rehabilitation after getting treated for right rhino orbital cerebral Mucormycosis. Past medical history revealed right eye swelling associated with headache and decrease vision in the right eye after recovery from COVID -

19 and was diagnosed post covid as Right Rhinoorbital cerebral Mucormycosis. The patient was also having type 2 diabetes mellitus and hypertension for the last 6 years and was under medications.

On extraoral examination, there was facial asymmetry. Face was disfigured on the right side(fig:1) due to surgical intervention to treat Mucormycosis. Nose was deviated to right side due to the absence of the nasal septum(fig:2).Right eye globe was removed surgically. There was an absence of zygomatic bone on the right side which lead to depression of the face. A portion of the right side of upper lip was surgically removed. The remaining lip was unsupported due to maxillectomy.

On intra oral examination, Necrotic and dead Tissue of right maxilla, necrosed septum, eroded alveolus and palate, purulent discharge from right eye were seen. There was complete absence of maxillary alveolar bone and the palate(fig:3). There was direct oro-nasal communication. There was generalised inflammation of gingiva due to poor oral hygiene.

Histopathology: following sections were studied:

- A. Right maxilla - sections from anterior, posterior, medial and lateral mucosal margin shows necrosis, acute on chronic inflammation changes.

- B. Right eye: sections studied from anterior segment and superior shows presence of broad aseptate fungal hyphae.
- C. Right maxilla: sections studied shows fungal hyphae.

Diagnosis

Fungal infection of right maxilla and right eye morphologically resembling Mucormycosis.

Treatment Plan

The patient reported 1 year after the surgery to Department of Prosthodontics. Initially, a primary impression was made with impression compound. Impression was moulded to record mode the surface more accurately and cast was made. A permanent denture base with a hollow bulb was fabricated using heat cure acrylic resin.

An occlusal rim was made over the permanent denture base. To stabilize the denture base, head gear was attached to it. The maxillomandibular relationship was recorded. The teeth were arranged. After the try-in, it was processed and inserted. Oral hygiene and post denture insertion were given to the patient and patient was recalled after 24 hours for follow -up. On recall, mild ulcer and swelling was seen in the patient mucosa and required corrections were done. Patient is kept under regular check-up after every 2months.

Fig:1



Fig:2

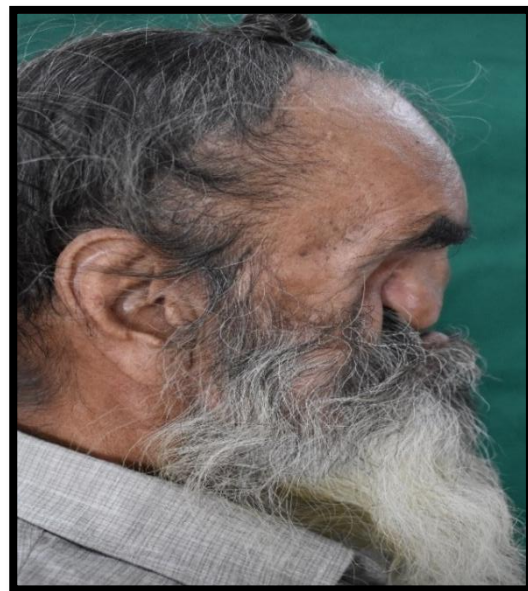


Fig:3

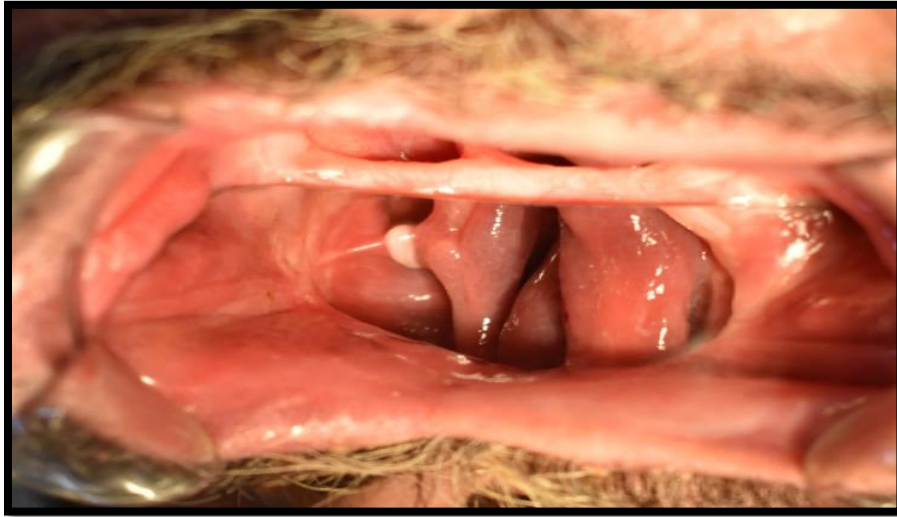


Fig:4



Fig:5



Fig:6



Fig:7



Fig: 8



Fig:9



Fig:10



Fig:11



Discussion

A contagious illness called the coronavirus is brought on by the SARS-CoV-2 virus. It begins with a cold and fever and progresses to serious respiratory issues, exhaustion, soreness, and a loss of taste and smell. Immunosuppression brought on by COVID-19 raises the risk of Mucormycosis.

Due to a connection between the oral and nasal chambers caused by maxillary abnormalities, swallowing issues, nasal reflux, unclear speech, and an unsightly appearance can all ensue. The patient has both physical and psychological effects from all

these challenges. In the rehabilitation of such deformities, Prosthodontists may be crucial.

In this case, there was large maxillary defect(fig:3) leading to oro-nasal communication and creating problem in mastication and swallowing. So a hollow denture was planned which also act as an obturator. Hollow bulb obturator prosthesis was fabricated to overcome the weight of the prosthesis as the defect was large. Hollow bulb also aid in resonance of speech. Leaving the hollow bulb open at the top may create difficulty for the patient in its maintenance and collection of nasal secretions and accumulation

of food particles causing a foul odor. Hence, closed hollow prosthesis was preferred.

There was no bony support present, in order to achieve retention, stability and support for the prosthesis, an orthodontic head-gear was used along with an attachment which was fixed in the maxillary prosthesis (fig:8). Usually head gear is supplied with 2 straps i.e. one on each side. Design of the head gear used here was improvised by attaching 2 extra straps in the front region(fig:4). These straps were attached to provide desired retention to the prosthesis.

Before starting up the procedure in such cases proper thorough history is needed for proper planning and treatment of the patient. The type 2 impression compound was used to make the primary impression as Impression compound is a thermoplastic material. Once in the mouth, the material hardened and recorded the detail of the soft tissues. Because of the instability of the denture base centric relation was not recorded accurately. To remove the defective contacts, occlusal anatomy of the teeth were altered. The maxillomandibular relationship was recorded. The teeth were arranged. After the try-in(fig:5,6) it was processed and inserted (fig:9).

Conclusion

A multidisciplinary approach is necessary for successful prosthetic rehabilitation of a partial maxillary deformity. The magnitude of the defect and the placement of the remaining hard and soft tissues are key factors in successful obturation. The prosthesis' weight could operate as a dislodging

force, so it must be light and simple to clean in order to improve postoperative outcomes. Frequent follow-up is must for such patients.

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