

Dr. Meet Mehta<sup>\*</sup>, Dr. Nitu Shah<sup>\*\*</sup>, Dr. Dishant Pandit<sup>\*\*\*</sup>, Dr. Neha Vyas<sup>\*\*\*\*</sup>,

## ABSTRACT

Mucormycosis is an opportunistic fulminant fungal infection, which mainly infects immunocompromised patients. The recent emergence of the Coronavirus Disease (COVID-19) disease had been associated with reports of fungal infections such as aspergillosis and mucormycosis especially among critically ill patients treated with steroids. The recent surge in cases of COVID-19 in India during the second wave of the pandemic had been associated with increased reporting of invasive mucormycosis. In this era of the pandemic, patients with diabetes mellitus are at an increased risk of secondary infections and systemic complications. We report a case of maxillary necrosis by mucormycosis in an uncontrolled diabetic patient to emphasize early diagnosis of this potentially fatal fungal infection. We briefly discuss different disease and review the current concepts in management of mucormycosis. Early diagnosis, administration of systemic antifungals and aggressive surgical debridement followed by rehabilitation with maxillofacial prosthesis can reduce the mortality of this lethal fungal infection.

**KEYWORDS :** Post Covid Mucormycosis, SARS COV 2, COVID 19

## INTRODUCTION:

There has been a steep rise in the occurrence of the opportunistic fungal infection after the second wave of the severe acute respiratory syndrome Corona virus 2 (SARS-CoV 2).<sup>1</sup> Mucormycosis is a fungal infection caused by the fungus mucormyetes. It usually affects immunocompromised individuals and is less seen in healthy individuals. There are mainly 5 types of mucormycosis based on clinical presentation and involvement of particular sites; Rhinocerebral (sinus and brain) mucormycosis, Pulmonary (lung) mucormycosis, Gastrointestinal mucormycosis, Cutaneous (skin) mucormycosis and Disseminated mucormycosis.<sup>2</sup>

Rhinocerebral mucormycosis is the type that involves the head and neck region and usually manifests as an acute infection. The infection usually begins within the nose and paranasal sinuses extending into orbits, palate and cranial cavity. The predisposing factors are uncontrolled diabetes mellitus, leukemia, lymphoma, renal failure, organ transplant etc. once diagnosed, the

approach for the mucormycosis is aggressive surgical debridement followed by high dose antifungal therapy.

In this article, we report a case of maxillary necrosis in a diabetic patient with the emphasis on the early diagnosis, surgical debridement followed by the prosthetic rehabilitation.

## CASE REPORT:

A 53 year old patient came to the department of Oral and Maxillofacial Surgery, Ahmedabad Dental College and Hospital with a chief complaint of pain and pus discharge from the upper front teeth region since 1 month. Patient was relatively asymptomatic before 1 month after which he noticed pain and mobility of upper front teeth. The patient gave a history of dental extraction of upper front teeth (11, 12, 13, 21) previously due to pain and mobility before 1 week. Following the extraction, there was incomplete healing of sockets followed by pus discharge and the presence of denuded bone. His medical history revealed that he was diabetic since last 4 years and was on the medication for the same. He also

\* PG Student, \*\*Professor, \*\*\*Sr. Lecturer \*\*\*\*Professor and Head

Department Of Oral And Maxillofacial Surgery

Ahmedabad Dental College And Hospital

ADDRESS FOR AUTHOR CORROSPONDENCE : Dr. Meet Mehta, E-mail : drmeetmehta43@gmail.com, Ph: +91 9978805946

suffered from coronavirus disease before 1 month. On extraoral examination, the face was bilaterally symmetrical. The skin was normal. The lymph nodes were not palpable. There was no anesthesia or paresthesia noted over the face. The facial expressions were normal. There was no pain or swelling on face and no sinus or fistula was seen.

On intraoral examination, there were missing teeth in relation to 11, 12, 13 and 21. Denuded mucosa with exposed bone was seen from the mesial aspect of 14 to the distal part of 12 extending buccally to palatally involving the 12 and 13 region. There was swelling present on the palatal aspect starting from the midline and extending upto the distal aspect of 14. The swelling was soft in consistency and overlying mucosa was normal. Pus discharge was present from the extraction sockets. There was mobility of teeth in relation to 14, 15, 16 and 22. Segmental mobility was present in relation to 14, 15 and 16 region.

On the basis of the history and clinical findings, a provisional diagnosis of mucormycosis of maxilla was made. The differential diagnosis was given as osteomyelitis. Histopathological report of the incisional biopsy revealed aseptate fungal hyphae. A magnetic resonance imaging (MRI) with contrast revealed permeative destruction of right maxillary sinus alveolar plate, anterolateral and left paramedian anterior maxillary alveolus, anterior two-third of palatal processes. On the basis of histopathological report and radiographic findings a final diagnosis of mucormycosis was made. Subsequently, surgical management was done by infrastructural maxillectomy along with extraction of 14, 15, 16 and 22. Oro antral communication was managed with primary closure and satisfactory healing was obtained. The

excisional biopsy revealed necrotic bone interspersed with fungal hyphae. After 1 month the prosthetic rehabilitation was done with a definitive obturator and no recurrence was noticed after 1.5 years of patient follow-up.



Figure 1 : Pre-Operative Profile Photograph



Figure 2 : Pre-Operative Photograph

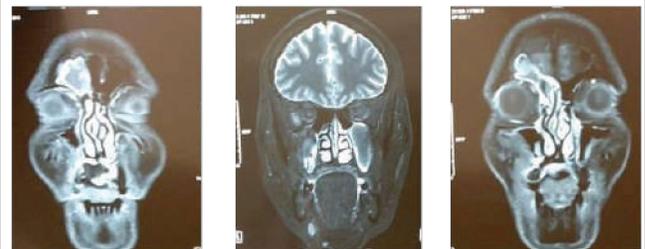


Figure 3 : Pre-Operative MRI



Figure 4 : Post - Operative intraoral Photograph

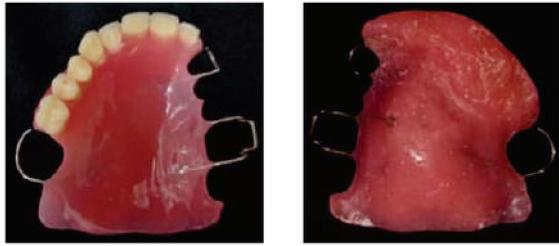


Figure 5 : Interim Obturator



Figure 6 : Intraoral Follow up

#### DISCUSSION:

Mucormycosis also known as Black fungal disease is an acute infection, the causative organism of which is saprophytic fungus of the class phycomycetes. It occurs as a post covid complication in patients who have underlying systemic diseases like diabetes mellitus.<sup>3</sup> The normal immunologic response of the patient to various infections is altered in the presence of uncontrolled diabetes mellitus. Systemic steroid therapy can further alter the glycemic control as well as the body's immune system. Use of high dose corticosteroid along with irregular assessment of the blood sugar levels in a diabetic patient becomes the major causative factor for mucormycosis.

The treatment of mucormycosis is varied. Early diagnosis is of paramount importance. Various radiologic assessments like CT scan and MRI can help us to know the extent of the disease.<sup>4</sup> A negative imaging study does not give us the reason to delay the more aggressive diagnostic procedures if the clinical suspicion is high.

The treatment with antifungals alone does not suffice. Aggressive surgical debridement followed by high dosage of antifungal therapy along with the assessment of underlying systemic illness is the treatment of choice for mucormycosis.<sup>5</sup>

#### CONCLUSION:

Mucormycosis is an aggressive disease with high mortality rate. Early diagnosis, prompt antifungal therapy along with surgical debridement and correction of the predisposing risk factors, including regulation of blood sugar and acidosis can reduce the mortality and morbidity of this fungal infection. Prosthetic rehabilitation improves the esthetic and functional outcome which ultimately improves the sociopsychological impact for the patient.

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