

Case Report

## Rhino- Maxillary/Alveolar Mucormycosis in a Post COVID-19 Patient: A Case Report

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**Abstract:** A case report of post COVID-19 Sino-alveolar Mucormycosis infection and its management. The patient was diagnosed with COVID-19 and superimposed diabetes mellitus, thus treated according to the persisting protocols. Following recovery, on the 20th day, the patient developed multiple abscess and mild pain in his left maxillary region. A diagnosis of mucormycosis was established after contrast-enhanced computed tomography and cytology. Surgical debridement and antifungal management was given. Patient was recovered and discharged from hospital within 10 days.

**Keywords:** Mucormycosis, covid-19, immunocompromised.

### INTRODUCTION

In late 2019 the first covid-19 case was reported in wuhan china, which has been rapidly spreading worldwide. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a single-chain RNA virus that causes COVID-19, a novel coronavirus disease. Secondary infections have been well documented in influenza, SARS, MERS, and other respiratory viral diseases. Secondary infections are apparently widespread in hospitalised, critically ill Covid-19 patients, accounting for between 10% and 30% of cases, with fungal infections being 10 times more likely. Corticosteroids, are thought to control inflammation-mediated lung injury and hence slow the course of respiratory failure in Covid-19 with the side effects, increased secondary infections and super-infections, immunosuppression, manifestation of diabetes mellitus, dizziness, fluctuation in weight, mood swings, insomnia and fatigue.

Mucormycosis is a rare opportunistic infection in which immunocompromised patients are mostly at risk caused by *Rhizopus arrhizus* (oryzae). It is a potentially lethal infection mostly affecting immunocompromised hosts, particularly in patient with diabetes mellitus and leukemia. Globally incidence rate varies from 0.005 to 1.7 per million population. With 46% fatality rate globally. In India, its prevalence varies to 0.14 per 1000, which accounts for 80 times higher than other developed countries.

### CASE PRESENTATION

A 43 years old male patient reported with multiple sinus draining over left maxillary region for past 1 – 2 months with history of post covid-19 infection and super-infection diabetes mellitus 2 months back. He presented with non- odontogenic multiple sinus discharge, dull aching pain in left maxillary region with diffuse palatal Swelling and Segmental Left Maxillary mobility (Fig 1 & 2). Patient was given iv methyleprednisolone 40 mg twice a day along with antibiotics and analgesics for 14 days. Based on history and clinical examination differential diagnosis of Mucormycosis was made.

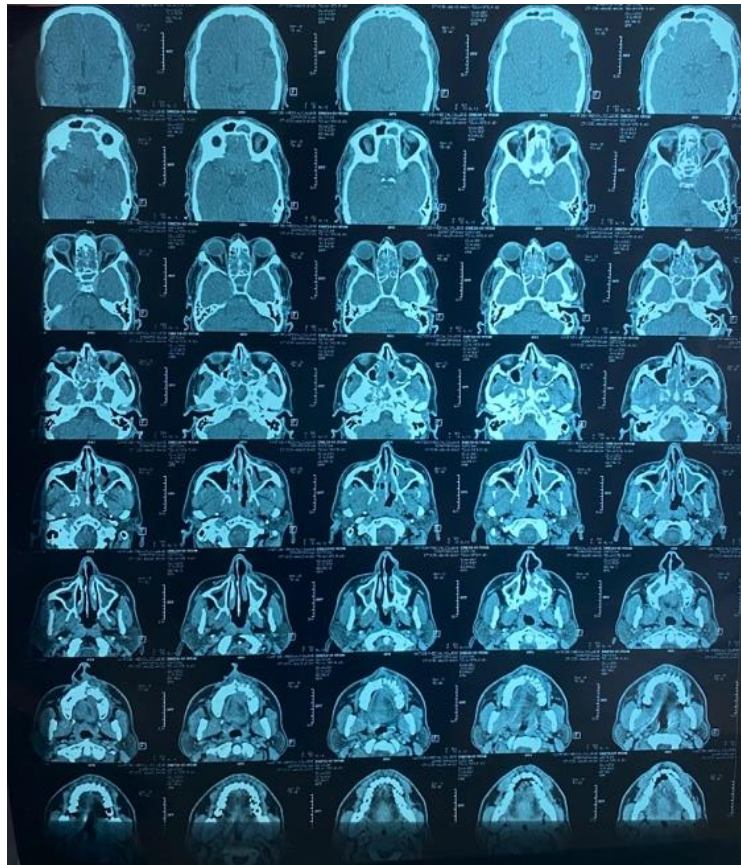
On CECT scan of paranasal sinuses showed soft tissue density area with mucosal thickening involving the bilateral maxillary, ethmoid, sphenoid, and frontal sinuses suggestive of sinusitis along with erosion and destruction of maxilla on left side, anterior wall of the maxillary sinus, pterygoid bone and body of sphenoid on right side with deviation of nasal septum towards the left side (Fig 3 & 4). Histopathological studies revealed degenerating fungal hyphae scattered at new foci in a blood mixed proteinaceous background, mild mixed inflammatory infiltrate and degenerating epithelial cells. Based on Radiology and histopathology, final diagnosis of mucormycosis of maxilla was made and patient was appropriately managed.



**Fig 1**



**Fig 2**



**Fig 3**



**Fig 4**

## DISCUSSION

Mucormycosis nomenclature is based on its anatomic site localization. Its various forms are pulmonary, cutaneous, gastrointestinal, disseminated and miscellaneous. On the maxillofacial it is classified into isolated rhino-alveolar/ sino-alveolar, nasal, rhino-orbital or rhino-orbital-cerebral Mucormycosis.

Mucormycosis are ubiquitous saprophytic fungi and are commonly found in decaying matter also in bread, soil, dust, air and hospital ward rooms. These organisms are potentially active in the temperate climates. Diabetes, immunosuppressive medication, leukemias, and neutropenias are the most common risk factors. Some recognised risk factors include neutrophil malfunction, hematopoietic stem cell transplantation, diabetic ketoacidosis, iron overload, and HIV/AIDS. These microorganisms usually enters into the host through the respiratory tract and has potent affinity for arteries and spread alongside internal elastic lamina causing thrombosis followed by infarction. This disease progresses from nose, sinuses or direct through vascular occlusion. These Fungal invasion to oronasal cavity or paranasal sinuses causes symptoms like sinusitis or periorbital cellulitis, facial numbness, with onset of conjunctival suffusion, blurry vision, soft tissue swelling followed by eschar formation and necrosis of nasofacial region. Advance infection habitually

spreads from the ethmoid sinus to orbit which results in loss of extraocular muscle function, proptosis, chemosis which can promptly result in cavernous sinus thrombosis, carotid artery, or jugular vein thrombosis (Lemierre syndrome) and mortality.

Diagnosis is classically dependent on case history, clinical features, pathological findings and imaging modalities play a vital role in determining the demarcations. Early diagnosis and prompt surgical intervention and antifungal therapy mainly amphotericin B also other antifungal chemotherapeutic agents such as posaconazole and caspofungin aids in controlling the severity of the disease. Along with Control or treating of underlying disease. Followed by Prosthetic obturation of palatal defect should be carried out.

## CONCLUSION

Mucormycosis is a rare and ubiquitous fungal infection which cause necrosis of orofacial tissues and the affected region in susceptible host. The incidence of mucormycosis secondary to COVID-19 is extremely high in immunocompromised patients, causing significant morbidity and mortality. Thus, the use of prophylactic treatment protocols needs to be accurately assessed and proper guidelines needs to be followed to reduce morbidity along with continuous monitoring and judicious use of Immuno-suppressants.

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