



## Case Report

## Mucormycosis in COVID-19: Does it Even Exist

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## ABSTRACT

Mucormycosis was observed in COVID-19 patients **Case Presentation:** A 48-year-old female patient complained of fever, body aches, vomiting, abdominal pain, diarrhea and no weakness or numbness. A chest x-ray revealed bilateral pneumonia. Treatment with steroids, antibiotics, remdesivir and anticoagulation was initiated. Patient was diagnosed with sinusitis with right orbital cellulitis, moderated proptosis and frank osseous erosions. Concomitantly patient developed a scrapable black eschar on the upper palate. Patient further underwent FESS surgery of the maxillary sinuses of both sides. Patient was sent home after an appreciable recovery and put on a close follow up list. Conclusion: Diabetes mellitus sufferers are particularly susceptible to this fungus's deadly effects. For individuals with mucormycosis, swift and precise diagnostic facilities, medical aid and a speedy yet coordinated response are all recommended.

## INTRODUCTION

The WHO proclaimed the COVID-19 epidemic, which was caused by the SARS-CoV-2 coronavirus, a global pandemic on March 11, 2020 [1]. An estimated of 284,559,007 confirmed COVID-19 cases in India and Pakistan were recorded on May 28, 2021, with 339,361 fatalities [2]. Doctors noticed an increase in instances of Mucormycosis towards the beginning of May 2020. Patients who had recently recovered from COVID-19, immunosuppressed persons, or those with underlying medical disorders such as diabetes constituted the majority of those who were infected [3]. It's been found in a variety of patient populations and with an incidence of 0.14/1000 people, with an estimated 25 830 cases in Pakistan. Diabetes mellitus (DM) is a documented risk factor for mucormycosis in Pakistan, with a prevalence rate of 9.8% [4]. We describe a case of COVID-19 infection in a patient who developed rhino-orbital mucormycosis during treatment.

**Case Presentation:** A 48 years old female with a past

medical history of type 2 diabetes mellitus presented to us with a one-week history of fever, generalized body aches, and a 2 days history of shortness of breath. There was nausea, vomiting, abdominal pain, diarrhea, and no weakness or numbness. She was prescribed steroids by a GP that she had been taking for the past one week and furthermore her glycemic control was poor. She was hypoxic and tachypneic on examination. Bilateral lung crackles were appreciated on auscultation. However, the rest of the general physical examination was unremarkable. Her vitals showed a temperature of 37.7. Heart rate of 120. Respiratory rate of 27. Blood pressure of 120/70 and pulse oximetry showed saturation of 87% at room air. Her routine Electrocardiogram demonstrated sinus tachycardia. Her chest x-ray was ordered that revealed bilateral pneumonia. A COVID-19 PCR was ordered that returned positive viral RNA and she was diagnosed with COVID-19 pneumonia. Treatment with steroids,

antibiotics, remdesivir, and anticoagulation was initiated. For hypoxia, she was supplemented with 5L oxygen via facemask. This treatment regime was the regional COVID-19 practice at that time. Her glycemic index remained high and she was being managed with subcutaneous insulin. The patient showed gradual improvement however, on the 14th day of her illness she started having pain around the right cheek that gradually spread to involve the complete right half of her face. This pain was mildly elevated with painkillers but exacerbated with eating. Suddenly she started having complaints of right orbital swelling upon which an ocular examination was conducted on which it was found that she had proptosis, chemosis of the right eye (Figure 1) along with loss of reflexes (accommodation and light reflex both), and nerve palsies. Neurological exam showed loss of oculomotor, trochlear, and abducens. She also displayed the weakness of the facial muscles and movements on the right side.



**Figure 1:** Chemosis of the right eye of COVID-19 Patient

Stroke was ruled out on an MRI brain of the patient and then cavernous sinus thrombosis was suspected for which a CTV was conducted, clearly showing thrombotic occlusion of the cavernous sinus. Upon strong clinical suspicion and on the investigation reports the patient was started on anticoagulation for cavernous sinus thrombosis and antifungals regime because the MRI displayed sinus wall enhancement reflecting a fungal infection. The patient was evaluated by neurology, ophthalmology, and otorhinolaryngology teams. Fungal cultures were sent and the patient was empirically started on amphotericin B. Concomitantly patient developed a scrapable black eschar on the upper palate (Figure 2), however, the initial fungal culture reports returned negative upon which it was repeated showing no fungal growth for the second time.



**Figure 2:** Scrapable black eschar on the upper palate of COVID-19 patient

A CTPNS was ordered which showed sinusitis with right orbital cellulitis, moderated proptosis, and frank osseous erosions. The radiologist report also stated that fungal sinusitis could not be excluded. CTPNS was repeated after 15 days along with CT -orbit with contrast and in a detailed report it was suggested that sinusitis with right orbital cellulitis, eroded right medial ethmoidal sinus, extraocular muscle swelling, and heterogeneous asymmetric enhancement of superior rectus, medial rectus, superior oblique and associated right cavernous sinus thrombosis. Right chronic serous otitis media was also reported. The patient underwent debridement by a multi-disciplinary surgical team in which enucleation of the right eye was done along with debridement of involved sinuses and the specimen was sent for analysis. Post enucleation CTPNS displayed findings consistent with the diagnosis of fungal sinusitis with involvement of primarily the paranasal sinus with limited extension into the empty right orbit, right-sided infratemporal fossa, cavernous sinus, and right mastoid. It also suggested partial erosion of walls of the right maxillary sinus and the possibility of osteomyelitis of the right maxilla. However, no intracranial extension was noted. The patient further underwent FESS surgery of the maxillary sinuses of both sides. She received a total of 3000mg of amphotericin dosage during her entire period. Patient was sent home after an appreciable recovery and put on a close follow-up list.

## DISCUSSION

COVID-19 co-infections are becoming more common because of their impact on the disease's prognosis. Secondary bacterial or fungal infections were found in 62 out of 806 patients, or 8% of the total, and broad-spectrum antibiotics were prescribed in a large percentage of those cases (1450 out of 2010, or 72 percent), despite the fact that there was no indication that the patients had been infected. For coinfections to occur, it is possible that a complex interplay of various factors such as comorbidities,

immunosuppressive medication, hospital-acquired infections, and immune system change by COVID-19 is at play [5]. A Pakistani observational study discovered a 15.6 percent prevalence of fungal infection in patients with confirmed COVID-19 who required ICU hospitalization [6]. In the United Kingdom, multicenter prospective cohort research revealed a prevalence of invasive fungal infections of 26.7 percent, with invasive fungal infections having a higher mortality rate than non-invasive fungal infections (53 percent vs 31 percent, respectively). Invasive fungal illness was related to corticosteroid therapy and a history of chronic lung disease [7]. It is possible to avoid and detect black fungus in post-COVID-19 patients at an early stage. Mucormycosis can spread to the lungs and brain if it is not properly treated. A multidisciplinary strategy is needed to treat the systemic spread of the disease [8]. The most common location of infection was the rhino orbital mucormycosis. The overall case mortality rate in this investigation was 52 percent. Pulmonary mucormycosis has a somewhat greater fatality rate. A study has found that 57 percent of people who participated in it died. Another comprehensive analysis on mucormycosis has found that antifungal drugs and surgery can save 67% of those who are infected. The mortality rate was found to be greater in this study (52 percent). Mucormycosis sufferers are more likely to have COVID-19 infection, which has led to a greater mortality rate [9]. Observational research conducted in Pakistan found a 15.6% fungus infection rate in patients with proven COVID-19 who needed ICU hospitalization. face a significant challenge in prioritizing mucormycosis surveillance, prognosis, and management along with a rigorous COVID-19 infection. Combating cutaneous mucormycosis in underdeveloped nations is complicated by inadequate laboratory facilities and a lack of competence, making it difficult to keep reliable statistics of disease incidence [10].

## CONCLUSION

Diabetes mellitus sufferers are particularly susceptible to this fungus's deadly effects. For individuals with mucormycosis, swift and precise diagnostic facilities, medical aid, and a speedy yet coordinated response are all recommended.

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