

Case Report

## Sinonasal Mucormycosis in a Post Covid Patient - First Case in Sri Lanka

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### Abstract


The Covid 19 infection which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is found to be associated with a wide range of bacterial and fungal co-infections. We report the first post COVID-19 Sino-orbital Mucormycosis infection in a patient with diabetes mellitus in Sri Lanka. A 57 years old female with a history of long standing uncontrolled diabetes presented with left facial pain and swelling. She has had a positive reverse-transcriptase polymerase chain reaction (RT-PCR) for SARS-CoV-2 one month back. On Rigid nasal endoscopy(RNE) blackish crusting was noted on the nasal septum. The Contrast enhanced CT scan (CECT) demonstrated fat stranding in premaxillary, infratemporal and pterygopalatine regions. Presence of mucormycosis was confirmed from biopsies following a functional endoscopic sinus procedure. Patient was treated with IV liposomal amphotericin B and with local nasal packs with amphotericin. Sinonasal biopsies after completion of 5g of Liposomal amphotericin B were negative and the patient was asymptomatic and discharged after 27 days of Amphotericin.

### Conclusion

A good prognosis can be achieved with an early diagnosis and debridement along with prompt conservative treatment of Amphotericin B .

**Key Words** - Mucormycosis, Post-COVID, Diabetes

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## **Introduction**

As of March 1st, 2021, more than 114,000,000 people worldwide have been infected with the novel coronavirus SARS-CoV-2. Reportedly, 10-30% of the severely ill hospitalized COVID-19 patients have suffered from secondary infections, including bacterial and fungal. Recently, Mucormycosis or the “Black fungus”, has add up to India’s COVID -19 related death toll. It is caused by the fungi of order of Mucorales, such as Mucor, Rhizopus, Rhizomucor, Absidia and Cunninghamella and is angioinvasive. <sup>1</sup>. Even though its prevalence in Sri Lanka is low , we have had 42 recorded cases in 2019, 24 cases in 2020 and 24 recorded cases up to May 2021<sup>2</sup>. Mucormycosis is common in immunocompromised individuals such as diabetes mellitus, and concomitant use of steroids.

## **Case Report**

A 57 years old female with uncontrolled long standing diabetes(>10years), presented with left facial swelling and facial numbness for about 3 weeks in June 2021. She has had a positive PCR for SARS-CoV-2 one month back, and was treated as asymptomatic COVID . She then developed a left tooth ache with a loose tooth in the left upper jaw which was extracted by a dental surgeon. She also had an on and off left nasal block and anosmia following COVID infection.

On examination there was left side facial swelling with a sensory loss in the distribution of the left trigeminal nerve. Bilateral air entry was satisfactory and intraoral examination was normal. RNE examination revealed blackish crusting over the left nasal septum and the middle turbinate. The rest of the examination was normal with an oxygen saturation of 100%.

CECT of nose and paranasal sinuses and orbits revealed mucosal thickening and opacification in all paranasal sinuses of the left side, predominantly in left maxillary, ethmoidal and sphenoidal sinuses. Fat stranding was demonstrated in the premaxillary, infratemporal and pterygopalatine regions. Under clinical suspicion, empirical IV liposomal Amphotericin B was started and following that patient underwent a functional endoscopic sinus procedure for debridement.

Mycological evaluation of the tissue biopsies from the nasal septum revealed broad ribbon-like aseptate fungi on KOH wet mount suggestive of Zygomycetes. But culture on Sabouraud dextrose agar was negative after 72 hours.

Patient was managed in a multidisciplinary setting . IV Liposomal Amphotericin B was given for a total 27 days with a cumulative dose of 5g. Nasal packing with amphotericin was carried out throughout the period with a 2 day interval following a 48 hrs of nasal packing. She developed heart failure on day 7 due to fluid overload which was managed conservatively with the cardiologist and the visiting physician withholding amphotericin for 4 days. She had metabolic derangements which include hypomagnesemia, hypokalemia which was managed with magnesium supplements and infusions and potassium replacement respectively. Her serum creatinine levels elevated two folds from her baseline, which returned back to normal with a 2 day interval of withholding amphotericin . The Non contrast CT scan performed after 14 days had the same amount of fat stranding compared to the previous CT scan , but the sinuses were clear. Fungal stains and culture were negative on nasal mucosal biopsies sent following completion of 5g of Iv

Liposomal Amphotericin B. Patient was asymptomatic and discharged with Steroid nasal drops and nasal douching.

At her two weeks review the nasal cavity and the maxillary sinus didn't show any evidence of fungal infection and a repeat CT scan was planned after 1 month of completion of Amphotericin B.

## **Discussion**

Mucormycosis is an opportunistic infection which is rare, and leads to angio invasion leading to necrosis and infarction of the involved tissues. This leads to characteristic blackish crusting seen in the sinuses hence the name “Black Fungus”<sup>3</sup>.

The underlying predisposing factors include diabetes mellitus as with our patient, immunocompromised states, pre-existing lung pathology, systemic use of corticosteroids, cancer and patients who have undergone transplants.

CT and MRI are valuable modalities that can be used to diagnose the involvement of sino nasal regions and orbit. CT scan findings include a mild enhancement, a low-density opacification without any post contrast enhancement as in our patient or heterogeneously enhancing and nonenhancing intrasinus abscess like appearance. Presence of retromaxillary, orbital or facial fat stranding indicate the aggressiveness of the infection. In MRI, the majority of the mucormycosis lesions appear hypointense on T1-weighted images with a variable hyperintensity on T2-weighted images. The affected turbinates and/or sinuses may be seen as areas of non-enhancing soft tissues, which is known as “Black turbinate sign”, and this helps in detection of rhino-sino-orbital mucormycosis in its stages<sup>4</sup>.

Mainstay of treatment as we have practiced is the medical treatment with Amphotericin B and endoscopic surgical debridement of the necrotic tissues. As Maini A. et al suggests, we observed that local treatment with amphotericin B nasal packs is successful. Other adjunctive treatment modality includes use of hyperbaric oxygen<sup>5</sup>.

## **Conclusion**

Prognosis depends on early identification and early initiation of treatment. It is also vital to manage the metabolic, cardiac, and nephrological derangements which occur for the success of the treatment.

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