

Opportunistic Fungal Infection COVID 19 patients: Mucormycosis

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Abstract

Coronavirus disease 2019 (COVID-19) is a potentially fatal infection caused by the novel severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The highly contagious nature and exponential spread of SARS-CoV-2, coupled with its potential for a rapid progression to acute respiratory distress syndrome (ARDS), has overwhelmed health care systems globally. Mucormycosis has emerged as new crisis.

Key words: COVID 19, mucormycosis

Introduction

COVID-19-associated mucormycosis,^[1] commonly referred to as black fungus,^[2] is the association of mucormycosis (an aggressive fungal infection) with COVID-19.^[3] It has been reported around the nose, eyes and brain – a clinical manifestation sometimes referred to as 'rhino-orbital-cerebral (ROC) mucormycosis'.^[4] The condition does not spread person to person and is not contagious.^[5]

Reports of COVID-associated mucormycosis have generally been rare.^[1] In the reports, the most common risk factor for mucormycosis was diabetes.^[1] Most cases presented during hospitalization (often 10–14 days after admission), and all but one of the affected people died.^[1] Early aggressive treatment is considered essential.^[1] (It has been estimated that between 40% and 80% of people who contract any form of mucormycosis die from the disease, depending on the site of infection and underlying health conditions.^[6])

COVID-associated mucormycosis has especially affected people in India.^[2] The association also appeared in Russia.^[7] One explanation for why the association has surfaced remarkably in India is high rates of COVID infection and high rates of diabetes.^[8] In May 2021, the Indian Council of Medical Research issued guidelines for recognising and treating COVID-associated mucormycosis.^[9]

Due to its rapidly growing number of cases, the Government of Rajasthan declared it an epidemic on 19 May 2021. Along with the Rajasthan government, the governments of Haryana, Tamil Nadu, Telangana, Gujarat, Bihar and JK have also now declared this an epidemic.^[10]

Risk factors

1. COVID-19 has tendency to worsen diabetes and also precipitate diabetes in previously normal individuals
2. The Covid 19 infection itself is associated with leucopenia and may lead to immune compromise caused by impaired or inappropriate immune responses.
3. Immunosuppressive treatments are being widely used for treatment of Covid-19 infection .
4. The severity of Mucor infection is largely dependent on the patient's immunity and general health.

5. Coexistence of Covid – 19 infection with high blood sugar levels, and immunosuppressive treatments would expectedly increase incidence and severity of Mucormucosis.
6. Mucor infection may occur during Covid-19 infection , or after a few weeks of apparent recovery from it.

Checklist of sentinel signs/ symptoms

Nose and sinuses Mucor infection (relatively early disease) Early detection at this stage can enable early treatment and minimize complications.

- Headache and nasal obstruction- especially if persistent or severe and not responding to pain medicines.
- Nasal crusting and nasal discharge which could be brownish or blood tinged
- Pain or loss of sensation on face
- Discolouration of skin of face / localised Facial puffiness
- Loosening of teeth/ discoloration or ulceration of palate

Eye / Orbital Mucor infection (moderately advanced disease)

- Eye swelling or redness, double vision, loss of vision, Eye pain, drooping eyelid Intracranial infection (very advanced disease)-
- II-VI Cranial nerve palsies (Cavernous sinus involvement) ; signs of MCA thrombosis

Treatment principles

Urgent intervention to minimize progression and mortality/ loss of eye

- Treatment of co-morbid illness/ blood sugar control & of Covid illness
- To review Covid treatments to minimize immunocompromise
- Twice daily evaluations as per Mucor Checklist above for progression to orbital/ intracranial involvement.
- Confirmation of Diagnosis by • KOH Smear/ Biopsy of involved lesion with appropriate precautions.
- Radiology – CT/ MR for assessment of disease extent. Radiological signs in the initial phase may often be subtle and minimal and may not demonstrate florid sinusitis and bone erosion.

Lack of these signs does not exclude the diagnosis

- Antifungal treatment with Amphotericin B/ Posaconazole. In situations of high clinical suspicion consider initiation of anti-fungal chemotherapy prior to microbiological confirmation
- Early surgical debridement after stabilization of systemic illness and ensuring facilities for post surgical care/ ventilation as anticipated

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