

MUCORMYCOSIS AND COVID-19**Dr. Tushar B. Shelar^{1*} and Dr. Jayvant V. Kharat²**

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ABSTRACT

We are seeing a lot of Mucormycosis cases with and after COVID-19 infection. Post Covid Mucormycosis is an emerging infection associated with high mortality rates. These fungi are very common moulds to which exposure is quite frequent, still a clinical disease is rare and affects severely immunocompromised patients or patients with Diabetes. Mucormycosis is manifested by a wide variety of symptoms such as Rhino, Orbital, Cerebral and Pulmonary infection. Its diagnosis relies on the identification of the organism in the tissue. Early diagnosis may prevent progress of tissue invasion, reduce the need and extent of surgical resection and improve survival.

KEYWORDS: Covid-19, Mucormycosis, Immunosuppression, Early diagnosis, Black Turbinate, Surgical Debridement, Amphotericin-B.

Mucormycosis

Mucormycosis is an acute invasive fungal infection of nose and paranasal sinuses caused by Rhizopus species, frequently in immune compromised patients. It is an opportunistic fulminant infection which may prove rapidly fatal.

Due to its Angio invasive property it involves the nasal mucosa, blood vessels, sinuses and spreads intracranially. The symptoms are rapidly increasing. The presence of "Black Turbinate" is a cardinal feature which is caused by Fungal Hyphae invading blood vessels which in turn causing ischemic necrosis.

The clinical stages, detailed evaluation and early diagnosis are the crux of the management of mucor. Surgical debridement with potent antifungal remaining the foundation of treatment. Amphotericin-B is the drug of choice. The appropriate and timely diagnosis and treatment can improve prognosis and patient survival.

Major Route of Infection

- Inhalation.
- Ingestion.
- Traumatic Inoculation.

Pathophysiology

- Angioinvasion
- Vessel thrombosis
- Tissue necrosis

Covid-19 and Fungi

1. Covid is known for its result in severe inflammatory reaction.
2. It is known to reduce immunity by decreasing CD4+ T cells and CD8+ T cells.
3. It is known to cause cellular immunosuppression.
4. It ends up in causing secondary fungal infection.

T-cells and Covid-19

Lymphopenia is a main feature of Covid-19 infection affecting CD4+ T cells, CD8+ T cells and B-cells and is more pronounced in severely ill-patients.

Studies shows a correlation between disease intensity and lymphopenia.

Suspect

1. Patients who are admitted in ICU and have prolonged stay in hospitals. (LongCovid Patient)
2. Patients who have underlying conditions like Diabetes Mellitus, Hypertension or are on immunosuppression drugs.

Presentation in ENT

- 1) It is one of the deadly fungi. It can grow anywhere in nose - sinus, skin, lungs, etc.
- 2) In nose - sinus = it normally presents as gangrene with the tissue appearing black in colour.
- 3) It presents with -
 - a) Severe unilateral headache,
 - b) Retro - orbital pain,

- c) Periorbital swelling,
- d) Rapid loss of vision,
- e) Ophthalmoplegia (lack of movement of eyes).
- f) Dental Pain
- g) Numbness of face

Acute Fulminant Fungal Infection

1. Infection starts from the nose and sinus. It reaches the orbit, cavernous sinus and the brain rapidly.
2. Rapidity of invasion is not only because of direct invasion but due to Angio invasion occluding the blood vessel, causing gangrene of tissues, which appear black in color.

Types of Presentation

- 1) Restricted to nose and sinus alone.
- 2) Rapidly involves the eyes = Rhino Orbital
- 3) Involves the brain = Rhino Orbital Cerebral.

Diagnosis

- 1) Strong suspicion
 - 2) Nasal endoscopy
- Endoscopic = Early signs are purplish anesthetic mucosal patches. Frank gangrene comes in late.
- 3) Tissue for mycology, histopathology.

Treatment (Rx)

- 1) Controlling the underlying medical condition/s.
- 2) COVID-19 treated proactively.
- 3) Early diagnosis.
- 4) Start Antifungal as soon as suspicious.
- 5) Repeated debridement.
- 6) Amphotericin-B is the drug of choice.

Aggressive multidisciplinary treatment is required for satisfactory results.

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