

GOVERNMENT OF ASSAM  
HEALTH & FAMILY WELFARE (A) DEPARTMENT  
DISPUR, GUWAHATI-6

Dated Dispur, the 20<sup>th</sup> May, 2021

ORDER

**HLA 485 /2021/1:** Whereas a suspected case of MUCOR MYCOSIS (Black fungus) has been detected in a hospital at Guwahati; and

Whereas a large number of similar cases have been reported from other parts of the country; and

Whereas there is a likelihood of increase in number of such cases in the near future;

Therefore, in order to screen, diagnose and manage such cases of MUCOR MYCOSIS (Black fungus) in COVID patients, the **Standard Operating Procedure as attached at Annexure-I** is notified with immediate effect in order to contain the further spread of the disease and in order to provide treatment as per protocol to the patients affected by such disease.

An **Advisory at Annexure-II** is also enclosed for wider circulation for dissemination of information to the public.

This order shall come into force with immediate effect.



Principal Secretary to the Govt. of Assam,  
Health & Family Welfare Deptt.

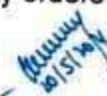
Memo No. HLA 485/2021/1-A

Dated Dispur, the 20<sup>th</sup> May, 2021

Copy to:

1. The Mission Director, National Health Mission, Assam
2. The CEO, ASDMA
3. The Director of Health Services, Assam, Hengerabari, Guwahati-36
4. The Director of Health Services (FW) , Assam, Hengerabari, Guwahati-36
5. The Director of Medical Education, Assam, Khanapara, Guwahati-22
6. The Director, DIPR
7. The Principal cum Chief Superintendent, all Medical College & Hospitals, Assam
8. All Joint Directors, Assam for wide circulation
9. S.O to the Chief Secretary, Assam
10. PPS to the Hon'ble Chief Minsiter, Assam
11. P.S. to the Hon'ble Minister, health & FW, Assam
12. P.S. to the Principal Secretary to the Hon'ble Governor, Assam
13. P.S. to the Principal Secretary to the Hon'ble Chief Minister, Assam
14. P.S. to the Principal Secretary to the Govt. of Assam, Home & Political Department, Dispur
15. Office Copy

By orders etc.



Joint Secretary to the Govt. of Assam  
Health & FW Department

**Standard Operating Procedure for Screening, Diagnosis and Management of MUCOR MYCOSIS in COVID Patients – Gauhati Medical College & Hospital, Guwahati**

**What is MUCOR MYCOSIS (Black fungus)?**

Mucor Mycosis is a rare serious fungal infection caused by fungus Mucor. People get Mucor Mycosis by coming in contact with its spores in the environment. It can also develop in the skin after the fungus enters the skin through a cut, abrasion, burn or other types of skin trauma.

**Pre disposing factors:**

It can develop in patients

- With uncontrolled diabetes mellitus specially diabetic keto acidosis.
- Immuno suppressed patients (post transplant/ malignancy, injudicious use of high dose of steroids, Etolizumab / Tocilizumab)
- Prolonged ICU stay.
- People with HIV
- Malnutrition
- Trauma including burn.

**When to suspect?**

Is people having pre-disposing factors mentioned above develop

- Nasal blockage, pain over cheek bone, eyes, blood stained or blackish nasal discharge, congestion or redness and swelling of eyes and nose, difficulty in vision e.g. blurred vision, painful eye movement, double vision and blindness.
- Headache and fever, seizures, altered mental state.
- Cough and blood stained sputum, shortness of breath with worsening respiratory problem.
- Tooth ache, loosening of teeth & jaw involvement.
- Redness, blackish discoloration in the skin with necrosis.

**How to diagnose ?**

High index of clinical suspicion with special reference to pre-disposing factors

- Scrapping of the affected skin and examination with KOH preparation.
- Nasal swab for fungal budding hyphae.
- Fungal culture & skin biopsy
- Blood investigation – CBC, LFT, KFT, Electrolytes, Blood sugar (fasting, PP,HBA1C)
- Imaging – CT scan/ MRI of brain, PNS and chest.
- Investigations related to pre-existing diseases.

**How to prevent ?**

COVID Patients in hospital :

- Better control of blood sugar during COVID with or without steroids
- Use steroids judiciously observing correct timing, correct dose & correct duration.
- Use antibiotics/ antifungals judiciously
- Use clean, sterile water for humidifiers during the oxygen therapy.

### COVID Patients in Home isolation:

Patients who have comorbid conditions like Diabetes Mellitus, On immune suppressant drugs. Renal transplant patients or those on steroids for medical cause need to observe the following Warning symptoms:

- Facial Pain/ Cheek pain
- Bloody & foul smelling nasal discharge
- Nasal stuffiness
- Eye Symptoms like – Eyelid edema, redness in the eye, any visual disturbance.

### Community in General :

- Use masks if you are visiting dusty construction site
- Wear shoes, long trousers, long sleeve shirts & gloves while handling soil (Gardening), moss or manure.
- Maintain personal hygiene including thorough scrub bath.

Often mucormycosis is reported due to poor maintenance of humidifiers. Hence the following SOP is prescribed for strict adherence:

- Always use distilled or sterile water
- Never use un-boiled tap water nor mineral water.
- Fill up to about 10 mm below the maximum fill line
- Do not let the water level pass below the minimum fill line
- The water level checked twice daily and topped up as necessary
- The water in the humidifier should be changed daily
- Humidifier should be washed in mild soapy water, rinsed with clean water and dried in air before reuse.
- Once a week (for the same patient) and in between patients, all the components of the humidifier should be soaked in mild antiseptic solution for 30 minutes, rinsed with clean water and dried in air.

### Treatment:

#### Medical management


#### Antifungal Therapy :


- 1) Hydrate the patient with 500 ml of NS before Amphotericin-B
- 2) Inj. Liposomal Amphotericin-B – 5-10 mg/kg/day to be diluted in 500 ml of 5% Dextrose over 4-5 hours for 14-21 days in Hospital.  
or
- 3) Inj. Amphotericin – B – 1-1.5mg/kg/day mixed with 500 ml 5% Dextrose over 4-5 hours for 14-21 days in Hospital. Special precaution to be taken during Amphotericin – B infusion as this drug is photosensitive.
- 4) Monitor S. Creatinine and S. Potassium every 72 hours.
- 5) Patients who are intolerant to Amphotericin – B can be given alternative agents like Posoconazole Tab. 300mg twice daily on day one followed by 300 mg once a day for 3-6 months.
- 6) Monitor patient clinically microbiologically and with radio-imaging for assessing & disease progression.

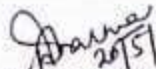
- 7) After 3-6 weeks of Amphotericin-B therapy, consolidation therapy with Posaconazole for 3-6 months to be instituted. Duration of therapy depends on clinical response and radiological resolution and has to be individualized.


**Surgical management:**


- Surgical debridement to remove all necrotic material, by ENT and Ophthalmology team

  
Dr. Pankaj Adhicari  
Prof. & HOD, Dermatology &  
Member Secretary

  
Dr. Basanta Hazarika  
Professor of Pulmonary  
Medicine & Member

  
20/5/2021  
Dr. Kalpana Sharma  
Prof. & HOD, ENT  
& Member

  
Dr. B.N. Choudhury  
Prof. & HOD, Gastroenterology  
& Member

  
20/5/2021  
Dr. Marami Das  
Prof & HOD, Neurology  
& Member

## Advisory for Screening, Diagnosis and Management of MUCOR MYCOSIS in COVID Patients –

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### Community in general:

- Use masks if you are visiting dusty construction site
- Wear shoes, long trousers, long sleeve shirts & gloves while handling soil (Gardening), moss or manure.
- Maintain personal hygiene including thorough scrub bath.
- **Seek immediate medical attention in case of developing any or combination of symptoms.**