

# What is Mucormycosis? Why is it Black Fungus?

I would like to welcome readers to this with a warning that this will be informative as well as scary.

A lot has been written about this disease in the past few weeks. A lot has been blown out of proportion by people without any knowledge. While a significant amount you have read on Whatsapp forwards is true, albeit not conveyed in a correct manner. So I will be writing to help clear misconceptions and create awareness.

If you have any doubts after reading this, please feel free to email me (mentioned at the bottom) and I will be happy to answer your queries.

## **a. What is mucormycosis?**

It is a fungal infection caused by the Mucorales order in which the species most commonly implicated are *Rhizopus*, *Mucor* and *Absidia*.

Mycosis is a term for fungal infection and hence Mucormycosis-Mycosis caused by Mucor.

## **b. Why is it suddenly gaining its notoriety?**

There has been a sudden spurt in the number of cases. As a doctor treating this condition, previously we used to see 3-4 in a year. Now its more like 3-4 a week. I know of ENT surgeons operating and admitting ONLY patients suffering with this, daily.

## **c. What makes it so dangerous?**

The fungus invades tissues and blood vessels and causes thrombosis. This leads to death of the tissue, i.e. necrosis. Necrotic tissue is typically black and hence the very catchy title to this disease. Since it affects the Oral cavity, Nose and Sinuses and thereafter spread to the eyes and brain, it can be very disfiguring and life threatening. It is also known as Rhino-Cerebral Mucormycosis.

It spreads quickly and can often present in an advanced stage. There can be loss of vision at a very early stage.

## **d. Why is it targeting only certain people?**

You must have heard the term "*immunocompromised*". It means a person having a weakened immune system. They are unable to fight off the fungus once it has invaded the cells of the body. This lack of immunity allows the fungus to spread and destroy tissue.

The recent pandemic of COVID19 infection has led to a large number of people suffering severe illness, which has left them to have the following issues:

1. prolonged ICU stay
2. high blood sugars
3. prolonged oxygen use

Previously as well there were patients getting inflicted with this disease. Their profile was:

1. Chronic kidney disease
2. Uncontrolled #diabetes
3. HIV/AIDS
4. Chemotherapy and Anticancer drugs

The COVID patients with added factors of the second list give rise to a cohort of diseased that are severely immunocompromised, even more than before, which are at a risk for development of this fungal illness.

#### **e. What is the controversy? Why aren't we able to decide a cause?**

This is a multilevel answer. I have tried to analyse it from all sides and present it to you.

**STERIODS.** We have realised over the past year that the mainstay of treatment of COVID 19 is steroids. As physicians have seen, there has been an explosive rise in the number of cases, which has led to many practitioners of medicine starting the treatment at a peripheral level.

Starting of steroids preemptively, has led to

1. Unmasking of subclinical diabetics
2. Sugars shooting up of known diabetics

This creates an immunocompromised state and predisposes to mucormycosis.

Physicians, keep telling us that the use of steroids was the same last year. I myself have prescribed steroids for many conditions in routine ENT practice. There are many patients on long term steroids for years, for various conditions. But none have seen such a rapid rise in cases.

So where does that leave us? Yes steroids are added risk factor but not conclusively solely responsible.

**COVID 19.** The infection leads to a hypercoagulation state with rise in serum ferritin(iron) levels in our blood. Mucor grows better in such environment. It is true but again one cannot conclusively prove it.

**OXYGEN.** High flow nasal oxygen has been blamed for trauma to the nasal mucosa, allowing the fungus to implant. But my friends counter with a valid point,

that there have been patients over the last many decades been given oxygen via nasal prongs, and have been in ICU set ups, but have not developed Mucormycosis. In fact they say that nearly all admitted patients receive oxygen, then why isn't everyone developing it?  
So once again, no closer to the answer.

Certain people have claimed that **Industrial Oxygen and Hospital contamination** of the supply is at fault. My counter to that is, if it was the either, then every patient who received that oxygen, or admitted in that hospital, should have been afflicted.

So I leave the cause/reason to the epidemiologists who will definitely study the incidence and maybe have answers for us, in the future.

#### **f. What is the prevention and treatment?**

There is a multidisciplinary approach to the treatment. The team consists of A Physician, Nephrologist, ENT surgeon, Oral Surgeon, Ophthalmologist, Radiologist and a Microbiologist.

The treatment involves surgical debridement of ALL dead tissue. Surgery may be endoscopic or with an external incision. It may entail removal of the eye, depending on the disease. Thereafter it is vital to stabilise all the medical issues and start intravenous Amphotericin B. It is a highly toxic drug and should be used only on the prescription of the consulting doctor. Once it has been started, we can expect some alteration in the kidney function, and it will be necessary to monitor that.

Prevention: We can only detect it early and eliminate it before it spreads. There is no foolproof way to prevent it.

Many ENT/Physician associations have advised prophylaxis with certain medications for patients at risk for developing Mucormycosis and we are trying that. But the cost of these medicines is prohibitory.

Certain methods suggested by ENT associations are mentioned below, but they are not definitive, while at the same time, they are not harmful to be done.

1. Saline nasal irrigation keeping the nose clean
2. Using dilute betadine nasal drops as a antiseptic

Surveillance with **regular Nasal Endoscopy** post discharge from hospital, for at risk patients should be advised. Sampling of the nasal mucosa with **swabs** and sending them for a basic **KOH mount test** should be done in suspicious situations.

**Warning signs** are as follows:

- Nasal Obstruction
- Nasal discharge which is bloody
- Crusting in the nose
- Puffiness of the eyes
- Blurry vision

Loss of vision  
Loose teeth  
Dental pain

The single most important and earliest sign is **altered sensation on the cheek.**

All patients who are at risk, should be educated regarding these symptoms and asked to report immediately if they develop these symptoms.

**g. What can you do if you develop symptoms?**

Do not panic. Seek out medical advice at the earliest. It could be your family physician, pulmonologist, Intensivist, ophthalmologist, ENT or dentist. But do not delay.

Even though it is a deadly disease, if you catch it early and initiate treatment rapidly, it can be beaten. Have faith.

Hopefully I have been able to dispel some doubts and create some awareness regarding the notorious Black fungus plastered all over your WhatsApp and TV sets.

I have consciously avoided putting pictures as they are very disturbing.

I pray to God that no one should get affected by this dreaded disease but I want you to read and be alert to any warning signs that may arise, and implore that person to not ignore it.

Stay alert and stay safe. Mask up. Take necessary precautions.

Thank you for reading.

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