

Mucormycosis: A Review

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Abstract-Mucormycosis is the fungal infection caused by a group of moulds called as mucormycetes. Zygomycosis is previous name of mucormycosis. This fungal infection can be classified into rhino-orbito cerebral, cutaneous, disseminated, gastrointestinal and pulmonary types. Overall high mortality rate is noticed. The aim of review is providing brief details regarding mucormycosis and its treatment method.

Keywords: Mucormycosis, Diabetic ketoacid, Black fungus.

I. INTRODUCTION

Mucormycosis is the fungal infection caused by a group of moulds called as mucormycetes. Zygomycosis is previous name of mucormycosis. These moulds found in the environment. These fungi live in soil and decaying organic matter like leaves, compost piles or rotten wood. [1].

This disease mainly seen in patients debilitated (much weakened) immune or metabolic disorders [2-6]. It can also occur on skin after a burn, cut or other type of skin injuries. [1].

There are five main genera are responsible for disease in humans: Rhizopus, mucor, Absidia and rare in saksenea and lunninghamella [2-6].

Patients contracting this infection uniformly suffer from predisposing condition like acidosis, uncontrolled diabetes mellitus, leukemia, lymphoma, AIDS. It also has been observed in patients with chronic renal failure, liver problems and dialysis. [7-8].

II. TYPE OF MUCORMYCOSIS

1. Rhino cerebral mucormycosis:

This is most common form of mucormycosis, it cause an infection in sinuses that can spread to the brain, this type of mucormycosis usually seen in people who have kidney transplant and in diabetic patients. [9-10].

2. Pulmonary mucormycosis:

This type of mucormycosis is most frequently seen in patients with leukemia or lymphoma .it presents with fever dyspnea and hemolysis [3-8].

3. Gastrointestinal mucormycosis:

This type is more common in children's and adults .premature and children's have low -birth - weight, infants less than one month of age are at risk if they had antibiotics, surgery and The lower body ability to fight against germ and sickness.[11-12].

4. Cutaneous mucormycosis:

This type mucormycosis is occur through the skin. This fungal infection might occur after a burn, scrape, surgery or other type of skin trauma. This is common form of mucormycosis among people who do not have weekend immune system.

5. Disseminated mucormycosis:

The infection spread through the bloodstreams to affect other part of body. The infection commonly affect the brain, but also it can affect other organs such as spleen, heart and skin.[13].

III. HISTORY

In1885, the German pathologist Paltauf described the first case of mucormycosis and describe it as Mycosis Mucorina [14]. Rate of mucormycosis increased rapidly mostly in

immune compromised individuals consequently in 1980s and 1990s [15].

Thus the Study was carried out depending upon the prevalence rate in France which showed amplification by 7.4% per year. The supposed possibility of seasonal variation of mucorales and its occurrence all over the world also reported [16].

IV. SYMPTOMS

The symptoms of mucormycosis depend on the fungus is growing on which body part. The most common is a sinus infection i.e. sinusitis along with nasal congestion, nasal discharge, and sinus pain.

May fever and headache is also occur. Based on the types symptoms are as follows:

Type of Mucormycosis	Some common symptoms
Rhinocerebral (sinus and brain) mucormycosis	One-sided facial swelling Headache Nasal or sinus congestion Black Lesions on nasal bridge or upper insides of mouth that quickly become more severe Fever Lethargy, slurred speech, partial paralysis, seizures
Pulmonary (lung) mucormycosis	Fever Cough Chest pain Shortness of breath Hemoptysis
Gastrointestinal mucormycosis	Abdominal pain Nausea and vomiting Gastrointestinal bleeding
Cutaneous (skin) mucormycosis	Skin lesion that resembles blisters or ulcers. The infected area turns into black. Other symptoms include warmth, pain or swelling around a wound or excessive redness.

Disseminated mucormycosis	The mucormycosis symptoms are very difficult to identify in people who are already suffering from other medical conditions. In patients disseminated infection is may develop in the brain. Signs and symptoms of disseminated mucormycosis extend hugely depending upon the organ system involved. [17].
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V. TREATMENT

- Control of diabetes & diabetic ketoacidosis.
- Reduce steroids with aim to discontinue rapidly. (if patient is still on)
- Discontinue other immunomodulating drugs if patient is taking like; Baricitinib, Tofacitinib.

1. Optimal Therapy Involves:

- Reversal of predisposing conditions (if possible)
- Surgical debridement

2. Prompt Antifungal Therapy:

- A prolonged course of a lipid of intravenous liposomal Amphotericin B (5-10 mg/kg with higher doses possibly given for CNS diseases) should be started early.
- Oral posaconazole (300 mg/day) or isavuconazole (200 mg every 8 hours for 1-2 days then 200 mg daily thereafter) can be used.

3. for Less Severe Disease:

- As step down therapy after diseases stabilization
- As salvage therapy due to poor response to or tolerance of amphotericin
- In breakthrough with patient invasive mold infection despite mold active antifungal prophylaxis, clinicians should initiate treatment with a different class of antifungal agents than used for prophylaxis
- Combination therapy with amphotericin and posaconazole is not proven but is commonly used because of the poor response to monotherapy
- Other azoles are not effective [18-19]

VI. CONCLUSION

To conclude, mucormycosis a rare fungal diseases with high mortality rate, commonly referred to as "black fungus". They have different types according to that they have different symptoms like fever, chest pain, redness around nose or eyes, headache, coughing, shortness of breath, etc.

Rapid accurate diagnosis, administration of drugs, prompt antifungal therapy, combination therapy, surgical debridement are the treatments involved in successful management for mucormycosis.

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