Main Article

MUCORMYCOSIS: A RETROSPECTIVE STUDY

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ABSTRACT: *A retrospective study has been carried out in a hospital over the past 5 years on 13 patients of mucormycosis. The study included evaluating the etiology, pathology, clinical features, management, and complications of mucormycosis. The results and conclusions have been studied and summarised in our paper.*

Key Words: *Mucormycosis, pathology, clinical features, treatment*

In today's times fungal infections have emerged as a vital health problem, especially because of the rising incidence of immune-deficient states.
Of these infections, mucormycosis is one of the most devastating fungal infections of head and neck.[1-10]

Mucormycosis presents itself clinically in the following four types:
- rhinocerebral;
- gastrointestinal;
- pulmonary;
- disseminated.

Our study concentrates on the rhinocerebral variety, which is the commonest.

Management Strategy Investigations
- Routine haemogram and biochemistry.
- Biopsy histopathological examination cultural confirmation.
- Radiological examination like CT scan.
- Investigations for the underlying disease.

Treatment policy
- Control of underlying disease.
- Local vigorous debridement.
- General physiological support.

Amphotericin-B
This varied from case to case depending on the extent of the disease.

The outcome of our study was as follows:
- Five of our patients succumbed to the disease.
- Three refused further treatment.
- One case we had to give up treatment because of raised urea and creatine levels.
- One patient was controlled and asymptomatic.

After evaluating our study we reached the following conclusions:
1. The commonest underlying disease was uncontrolled diabetes mellitus with the rest being immunocompromised.
2. Majority of our patients presented very late, many with intracranial complications.
3. A recurrence rate of 20% was seen in our study.

Thus, we reached the conclusion that mucormycosis is an indolent disease with a high mortality and morbidity. Also last but not the least, the high cost of amphotericin-B was a limiting factor in our country.

DISCUSSION
Over a period of 5 years, we studied 13 patients of mucormycosis. The underlying disease in the majority was uncontrolled diabetes mellitus while others were immunocompromised because of other diseases.

More men were seen to be affected than females. Of these most belonged to elderly age group with only two patients less than 20 years and three patients in middle age group. In our hospital most of the patients presented late, i.e. with various complications like cerebrospinal fluid rhinorrhea, while only one presented at an early stage, i.e., only nasal signs and symptoms. All these patients were treated for their underlying disease. They were also provided with all the necessary physiological and nutritional support. They were then started on the fungistatic/fungicidal agent – Amphotericin-B. The doses were calculated according to the patient's status and all necessary important parameters were

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Table 1: Number of patients studied: 13

Diseases	Number
Diabetes mellitus	10
Organ transplant	2
Leukemia	1

Sex ratio: M : F = 8 : 5.

Table 2: Age distribution

Age (years)	Number
1-20	2
20-50	3
>50	8

regularly monitored. In addition to the conservative medical treatment, an extensive local debridement was carried out.

Mucormycosis is an ubiquitous fungus, usually avirulent, causing opportunistic infections when the general resistance of the patient goes down.

Classification
Class: Phycomycetes.
Order: Mucorales.
Family: Mucoraceae.
Genera: Rhizopus, Mucor, and Absidia.

Structure
It is a basophilic, branched, non-septate fungus with rounded pigmented multicellular sporangia with multiple sporangiophores.

Predisposing factors
- diabetes mellitus,
- haematological malignancy,
- organ transplants,
- immunosuppresants,
- uremia,
- burns,
- severe malnutrition and diarrhoeal diseases.

Clinical presentations
- low-grade fever,
- headache, lethargy, and malaise,
- nasal obstruction,
- bloody nasal discharge,
- dull sinus ache,
- comatose state,
- cranial nerve palsies,
- nasal/facial/palatal necrosis,

Table 3: Clinical features

Modes of presentations	Number of patients
Nasal discharge	1
Cerebrospinal rhinorrhoea	2
Palatal perforation	2
Cavernous sinus thrombosis	4
Total loss of vision	5

Table 4: Outcomes of treatment

Outcomes	Number of patients
Died	5
Refused further treatment	3
Reccurence	3
Controlled and asymptomatic	I
Gave up treatment	1

- cavernous sinus thrombosis,
- opthalmic symptons.

Mechanism of spread
The fungus is present in air, dust, plants, and decaying matter. It adheres to the dust particles and is inhaled and deposited in the nose and paranasal sinus mucosa. The warm moist environment with the decreased immunity of the host enhances the growth of fungus. It then invades the blood vessels and causes plugging by the fungal mycelia. This leads to thrombosis and ischemic necrosis. It also acts by inducing IgE hypersensitivity, which is enhanced in a hypoxic environment.

Management
After the necessary investigations, a thorough debridement, antifungal drugs and control of the underlying disease is carried out.

To mention in brief about amphotercin-B.total dose, which can be given is 2 g desired blood levels: 2-2.5 mg/l.

Dosing
First day – 0.25 mg/kg of body weight intravenously over 45-60 min; second day – 0.5 mg/kg; third day – 0.75 mg/kg. Then alternate day 0.75 mg/kg. The dose can varied according to the patient.

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