



TO STUDY THE EMERGENCE OF COVID 19 ASSOCIATED MUCORMYCOSIS

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ABSTRACT **Background:** To describe the association between covid19 and development of mucormycosis. To describe the risk factors, clinical features, radiological features, treatment and outcome of covid 19 associated mucormycosis

Materials&Methods: A Prospective, observational study conducted at Government General Hospital, Kurnool. Total 30 covid-19 positive and negative patients (diagnosed by nasopharyngeal swab for RTPCR, TRUNAAT, RAT,HRCT chest) from may 2021 to july 2021 are included in the study. Data regarding comorbidities, previous history of covid, admissions, treatment given, radiological features, clinical features were collected and analysed. **Results:** Among 30 patients,Diabetes mellitus was found in 70%(21) cases, of which diabetic ketoacidosis and uncontrolled sugars was seen in 57.2%(12) cases. Of all the cases, 60%(18) presented with non respiratory symptoms. Radiologically, 76.7% cases presented with typical mucormycosis features like reverse halo sign, while remaining 23.3% presented with atypical features **Conclusion:** Because of severity and mortality associated with mucormycosis, it is important for clinicians to maintain a high index of suspicion for covid-19 associated mucormycosis in both immunocompetent and immunocompromised individuals.Prompt antifungal therapy, surgical intervention will improve the outcome.

KEYWORDS : Mucormycosis, Diabetes mellitus, corticosteroids**INTRODUCTION:**

The pandemic coronavirus disease(COVID-19) continues to be a significant problem worldwide.Among the several treatment options for COVID19, systemic glucocorticoids have been shown to improve survival.Widespread use of glucocorticoids can lead to secondary bacterial or fungal infections. Multiple factors such as glucocorticoids, worsening of blood glucose control, viral induced lymphopenia have been implicated in the development of mucormycosis in patients with COVID-19.Diagnosis of covid19 associated mucormycosis is challenging, as the clinical and radiological features of pulmonary and disseminated mucormycosis are non specific.

AIM:

To describe the association between covid-19 and development of mucormycosis.To describe the risk factors, clinical features, radiological features, treatment and outcome of covid-19 associated mucormycosis.

MATERIALS AND METHODS:

A Prospective, Observational study conducted at Government General Hospital, Kurnool. Total 30 covid-19 positive and negative patients (diagnosed by nasopharyngeal swab for RTPCR, TRUNAAT, RAT,HRCT chest) from may 2021 to july 2021 are included in the study. Data regarding comorbidities, previous history of covid, admissions, treatment given, radiological features, clinical features were collected and analysed.

Inclusion Criteria:

- Age 18 to 80 years
- All covid 19 positive and negative patients
- Patients with pulmonary mucormycosis.
- Patients with rhino orbital cerebral mucormycosis

Exclusioncriteria:

- Age <18 years
- Pulmonary tuberculosis
- Pregnant women
- Interstitial lung diseases
- HIV infection

Statistical Analysis:

Data regarding comorbidities, previous history of covid, admissions, treatment given, radiological features, clinical features were collected and analysed.Data analysis was performed using SPSS according to values following a Gaussian distribution

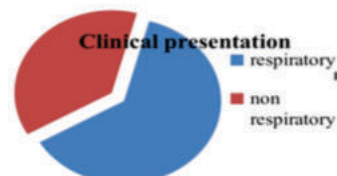
RESULTS:**Table 1 : Gender distribution**

Males	22	73.3%
Females	8	26.7%
Total	30	100%

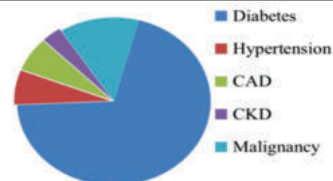
Among total 30 patients, 73.3% are males, 26.7% are females.

Table 2 : Clinical Presentation

Clinical Presentation	Frequency	%
Respiratory	30	100%
Non respiratory	18	60%

**Table 3 : Comorbidities**

COMORBIDITY	n	%
Diabetes Mellitus	21	70%
Hypertension	2	6.6%
Malignancy	4	13.3%
Coronary Artery Disease (CAD)	2	6.6%
Chronic Kidney Disease (CKD)	1	3.3%

**Table 4 : DKA, uncontrolled sugars**

	n	%
Total Diabetes Mellitus	21	100%
DKA	12	57.2%
No DKA	9	42.8%



Table 5 : HRCT chest

	n	%
Typical findings	23	76.7%
Atypical findings	7	23.3%

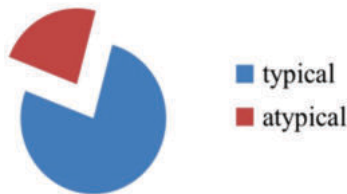


Table 6 : Sputum KOH, fungal c/s

Species Isolated	Frequency	Percentage
Aspergillus	2	6.7%
Candida	7	23.3%
Mucor	2	6.7%
Aseptate Fungal Hyphae	1	3.3%
Negative	18	60%

Table 7 : MRI Brain, PNS, Orbits

Findings	n	%
Positive	15	50%
Negative	15	50%

Table 8 : Investigations

Parameter	Mean value
D dimers	1.6 microgram/ml
CRP	31 mg/L
Serum Ferritin	321.01 ng/ml

Table 9 : Management

	Frequency	Percentage
Medical	30	100%
Surgical	10	33.3%
Both	10	33.3%

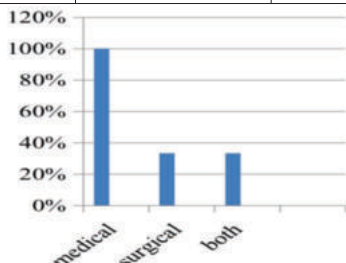
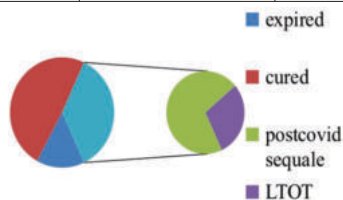


Table 10 : Outcome

Outcome	Frequency	Percentage
1) Cured	23	76.6%
Postcovid sequale	12	40%
LTOT	5	16.6%
2) Expired	7	23.3%



DISCUSSION:

Among 30 patients, males constitutes 73.3%, females constitute 26.7%. Disease is diagnosed by RTPCR/RAT/TRUNAAT as covid positive in 16(53.3%) patients and the remaining 14(46.6%) are diagnosed based on radiological findings. Diabetes mellitus was found in 70%(21) cases, of which diabetic ketoacidosis and uncontrolled sugars was seen in 57.2%(12) cases with a mean HbA1c levels of 8.5. Of all the cases, 60%(18) presented with non respiratory symptoms like headache, facial pain, orbital swelling, blurring of vision. Radiologically, 76.7% cases presented with typical mucormycosis features like reverse halo sign, while remaining 23.3% presented with atypical features or late features like loculated pleural effusion, hydropneumothorax. Rhino orbital cerebral involvement was noted clinically and radiologically in 50% cases. Sputum KOH, fungal

culture was positive in 40% cases. All patients were managed medically using Liposomal Amphotericin B, Posaconazole, Remdesivir while surgical management was required in 33.3% cases. Steroids used for more than one week particularly in patients with comorbidities is associated with poor outcome. Complications like hydropneumothorax developed in 13.3% cases, respiratory failure in 33.3% cases, MODS in 10% cases. Of the total 30 patients, 23(76.6%) cured of which 12(40%) patients developed postcovid sequale, 5(16.6%) patients required long term oxygen therapy, 7 (23.3%) expired. CONCLUSION :

Because of severity and mortality associated with mucormycosis, it is important for clinicians to maintain a high index of suspicion for covid 19 associated mucormycosis in both immunocompetent and immunocompromised individuals. Prompt antifungal therapy, surgical intervention will improve the outcome. Maintenance of adequate glucose control in patients with diabetes mellitus, guideline based use of corticosteroids, vaccination against covid 19 disease should be encouraged to improve outcomes.

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