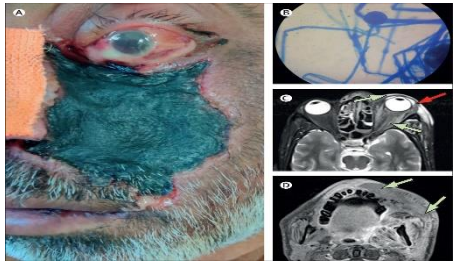
MRI AND ORBITAL MUCORMYCOSIS IN COVID -19: A DESCRIPTIVE CROSS SECTIONAL STUDY



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Introduction

- Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been associated with a wide range of opportunistic bacterial and fungal infections. [1]
- Both Aspergillus and Candida have been reported as the main fungal pathogens for co-infection in people with COVID-19. [2]

Introduction

- India has reported a recent surge in mucormycosis cases.
- According to WHO in India, prevalence of mucormycosis is estimated as 140 per million population, it is 80 times higher than developed countries so Government of India made it a notifiable disease in May 2021[3].

Introduction

- The primary reason that appears to be facilitating Mucorales spores to germinate in people with COVID-19 is an ideal environment of hypoxia, diabetes, new-onset hyperglycemia, steroid-induced hyperglycemia, metabolic acidosis, diabetic ketoacidosis , increased ferritins and decreased phagocytic activity of WBC due to immunosuppression coupled with several other shared risk factors including prolonged hospitalization with or without mechanical ventilators [4].

Introduction

- Rhino-orbito-cerebral mucormycosis (ROCM) is a rare invasive infection caused by class Phycomycetes fungi involving immunocompromised patients, arising from nasal and sinus mucosa, spreads rapidly to orbit and brain.
- It is difficult to treat so early recognition, management is important to reduce complications.
- There are few studies on imaging and mucromycosis in COVID 19 in India.

Aim & objectives

- **Aim:**
- To know the importance of MRI in diagnosis of Rhino-orbito-cerebral mucormycosis (ROCM) in COVID-19 patients.
- **Objectives :**
- 1.To know the extent of orbital involvement in Rhino-orbito-cerebral mucormycosis (ROCM) in COVID-19 patients.
- 2.Importance of MRI in Rhino-orbito-cerebral mucormycosis (ROCM) in COVID-19 patients management.

Methodology:

- A descriptive cross sectional study was conducted in regional eye hospital, Kurnool from May 2021 to October 2021.
- Institutional ethical committee clearance was taken.
- A total of 60 cases were included in study after applying inclusion criteria.
- Sampling technique: convenience sampling was used to collect the data.

Methodology:

- **Inclusion criteria:**
- COVID-19 patients.
- COVID19 patients with orbital mucormycosis.
- Sample population were investigated and data entered, analyzed by using Microsoft excel.

Results

- **Table 1. Socio demographic characteristics of study participants :**

Variable		Frequency (n)	Percentage (%)
Age	< 25 years	10	16.7
	26 -50 years	29	48.3
	>50 years	21	35
	Total	**60**	**100.0**
Gender	Male	39	65.0
	Female	21	35.0
	Total	**60**	**100.0**

Results

- TABLE 2. Distribution of study participants according to orbital involvement (n=60)

Orbital involvement status in COVID-19	Frequency	Percentage (%)
Present	38	63.3
Absent	22	36.7
Total	**60**	**100.0**

- A total of 60 COVID 19 positive cases orbital involvement was seen in 63 % (38) of cases only

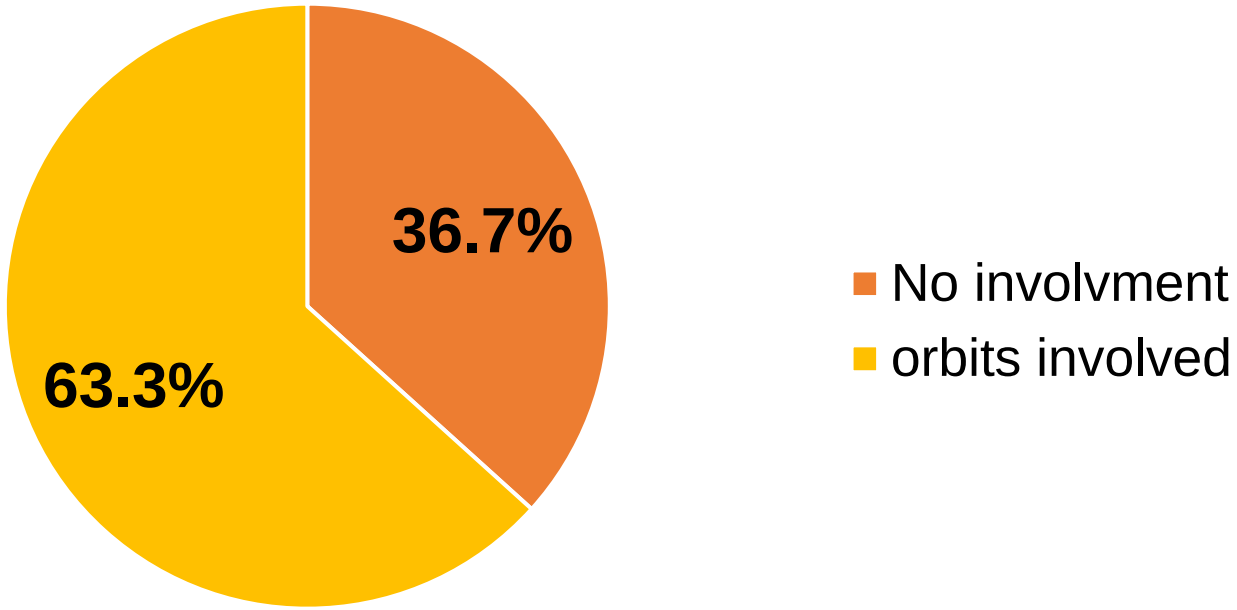

Figure1.Orbital involvement among study participants

- Table 3. Distribution of study participants according to extent of orbital involvement (n=38)

Extent of orbital involvement	Frequency (n)	Percentage (%)
Optic nerve	14	36.9
Extraconal compartment	9	23.9
Intraconal compartment	7	18.4
Bilateral involvment	5	13.1
Retinal detachment	2	5.2
Posterior dislocation of lens	1	2.6
Total	38	100.0

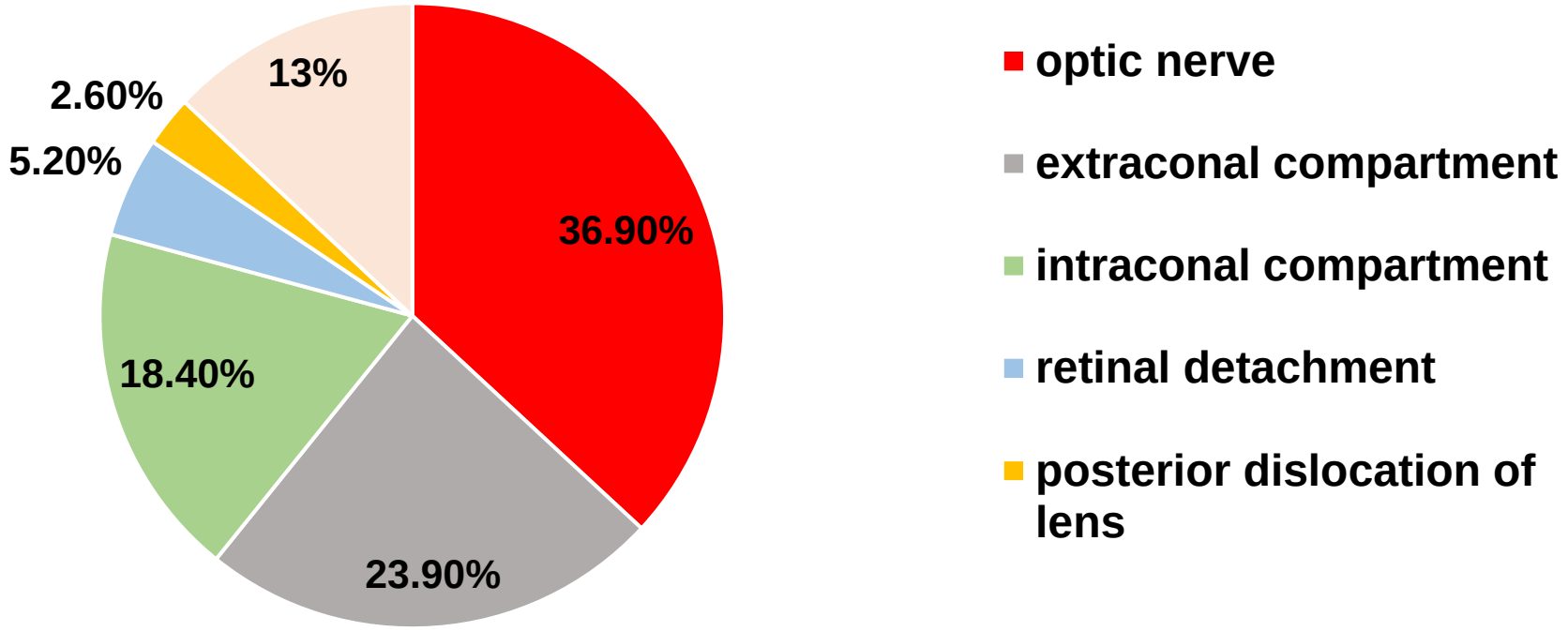

Figure 2.extent of orbital involvement

MRI findings in study participants

Image 1.Retinal detachment with posterior dislocation of lens (Right eye)

Image 2.Bilateral orbital involvement

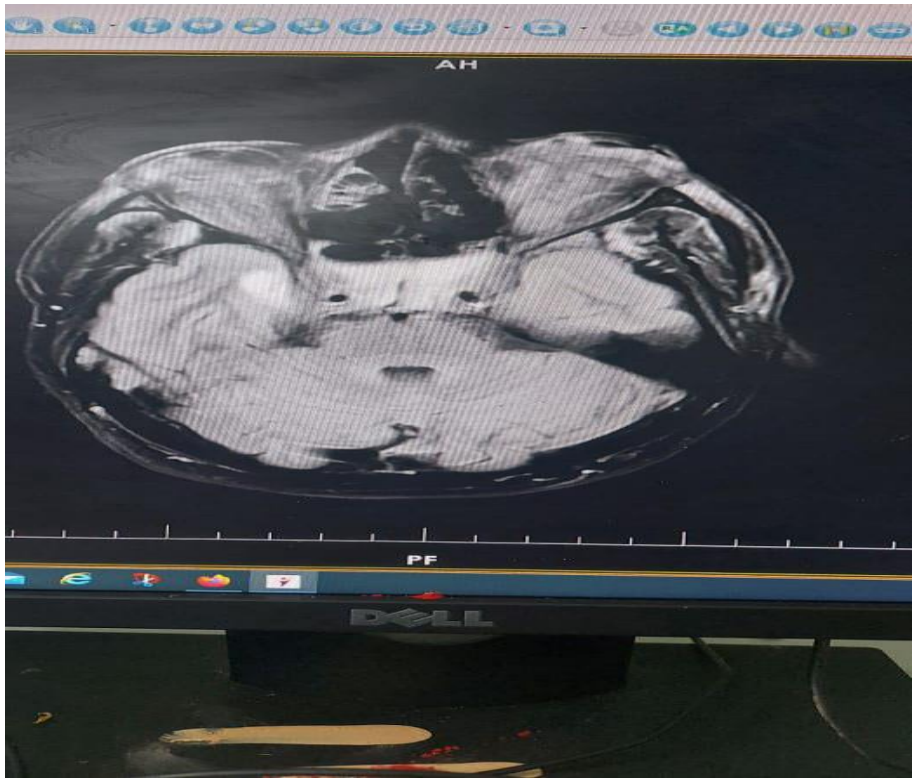

Image 3. Proptosis with inflammation of optic nerve

Image 4.Frontal lobe abscess

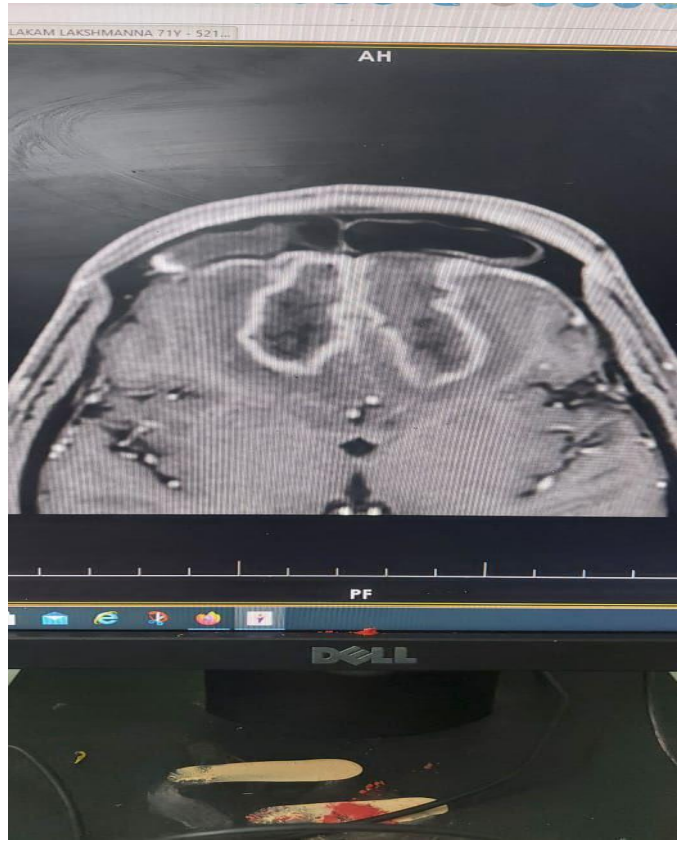

Image 5.Medial rectus involvement

Image 6.Periorbital involvement

Discussion

- Rhino-orbital mucormycosis involves the paranasal sinuses and orbits and may extend into the cerebral parenchyma.
- MRI is a valuable modality that can be used to diagnose mucormycosis infections involving sino-nasal region, orbits, and possible intracranial extension [5].
- The multiplanar capabilities of MRI with its superior soft tissue depiction are helpful in delineating the anatomical extent of disease as well as its complications [6].

- In present study 67.3% of study participants have orbital involvement .
- Augustin Lecler et.al studied on Ocular MRI Findings in Patients with Severe COVID-19: A Retrospective Multicenter Observational Study and they found in 129 patients 89% men and 7% of women had abnormal MRI findings of the globe consisting of the presence of one or several nodules of the posterior pole of the globe [7].

Conclusion

- Radiological investigation plays a major role for early diagnosis of spread into orbital compartments for appropriate treatment and functional evaluation after treatment and also for prognosis.

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Thank you