

1119561 - CLINICOPATHOLOGICAL STUDY OF POST COVID RHINO ORBITAL CEREBRAL MUCORMYCOSIS

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INTRODUCTION

- Mucormycosis is a potentially lethal, angioinvasive fungal infection predisposed by diabetes mellitus, corticosteroids and immunosuppressive drugs, primary or secondary immunodeficiency, haematological malignancies.
- The increased incidence of rhino-orbito-cerebral mucormycosis (ROCM) in the setting of COVID- 19 in India and elsewhere has become a matter of immediate concern.
- ROCM being a rapidly progressive disease, even a slight delay in the diagnosis or appropriate management can have devastating implications on patient survival .



- **PURPOSE:-**

- To find out the correlation between the histopathological features of tissue specimens with clinical features of Rhino Orbital Cerebral Mucormycosis in covid 19 patients



MATERIALS & METHODS :-

- **Study design** :Retrospective, analytical study
- **Study setting** :department of ophthalmology, Rangaraya medical college ,Kakinada.
- **Study subjects** : 10 patients with ROCM stage 3C to 4D
- **Study period** : between 1 June 2021 to 31 AUGUST 2021



- **INCLUSION CRITERIA :**

- Microbiological and radiologically diagnosed in post COVID patients
- ROCM stage 3C to 4D

- **EXCLUSION CRITERIA :**

- Those who are not given consent.
- All patients with PL+
- ROCM stage 1 to 3B
- Other indications of exenterations





Methodology

- All patients coming to ophthalmology are screened for visual problems.
- Visual acuity, fundus examination with 90D lens and indirect ophthalmoscopy.
- B scan ultrasonography
- Suspected case sent for microbiological study and MRI with contrast .
- Staging the patients according government guidelines
- Select the patients between stage 3C to 4D.
- Written consent was taken
- cases posted to FESS and exenteration simultaneously .
- Specimens sent to histopathological examination for correlation with clinical features.



RESULTS

- Total 10 patients with proven ROCM of different stages were subjected to exenteration along with FESS.
- Out of these 9 were male and 1 are female.
- Of these 4 are right eyes and 6 are left eyes.
- Average age of the patients were 50 ± 10 years .
- Out of this 2 have cavernous sinus thrombosis, 2 have panophthalmitis and 6 have total ophthalmoplegia.
- Out of this ROCM stage 3C – 4 patients , 4A – 1, 4B – 2, and 4D – 3 patients.
- Out of this 2 cases was done total exenterations , 8 was lid sparing exenterations .



Histopathological examination

- **Gross examination findings :-**
- Eye specimen measuring anteroposterly 4.5cm
,horizontally 5cm and craniocaudally 4.5cm consisting of
eyelids,extraocular muscles, cornea uveal tissue
,Periorbital fat and optic nerve and posterior chamber
filled with vitreous humor on cut section – identified .



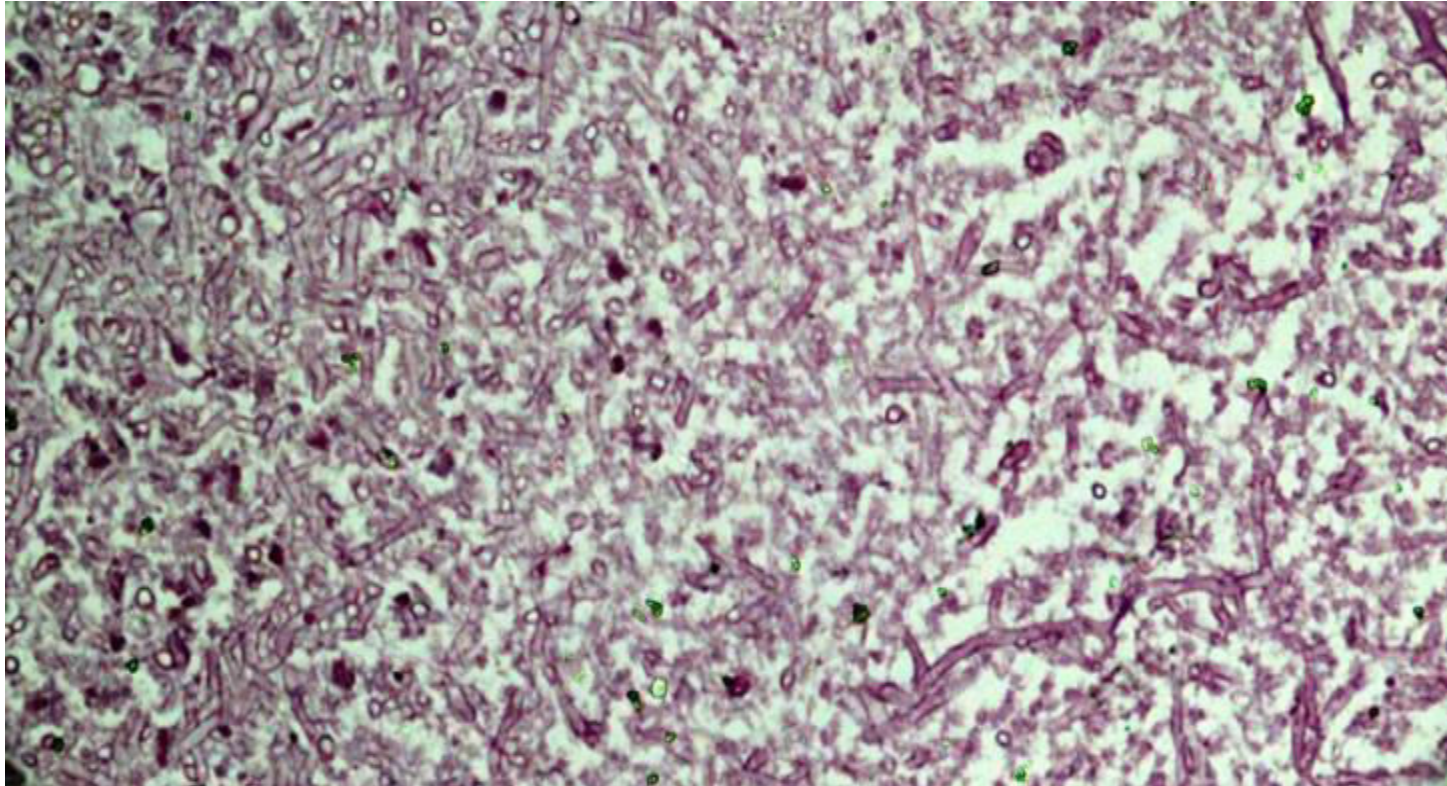
- Type of tissue section : paraffin
- Sections from each specimen : 8 to 10
- Size of tissue section : 2 to 3 mm
- Tissue preparations were stained with H&E
- Special stains used are Periodic Acid Schiff (PAS) and Grocott Methanamine Silver (GMS)

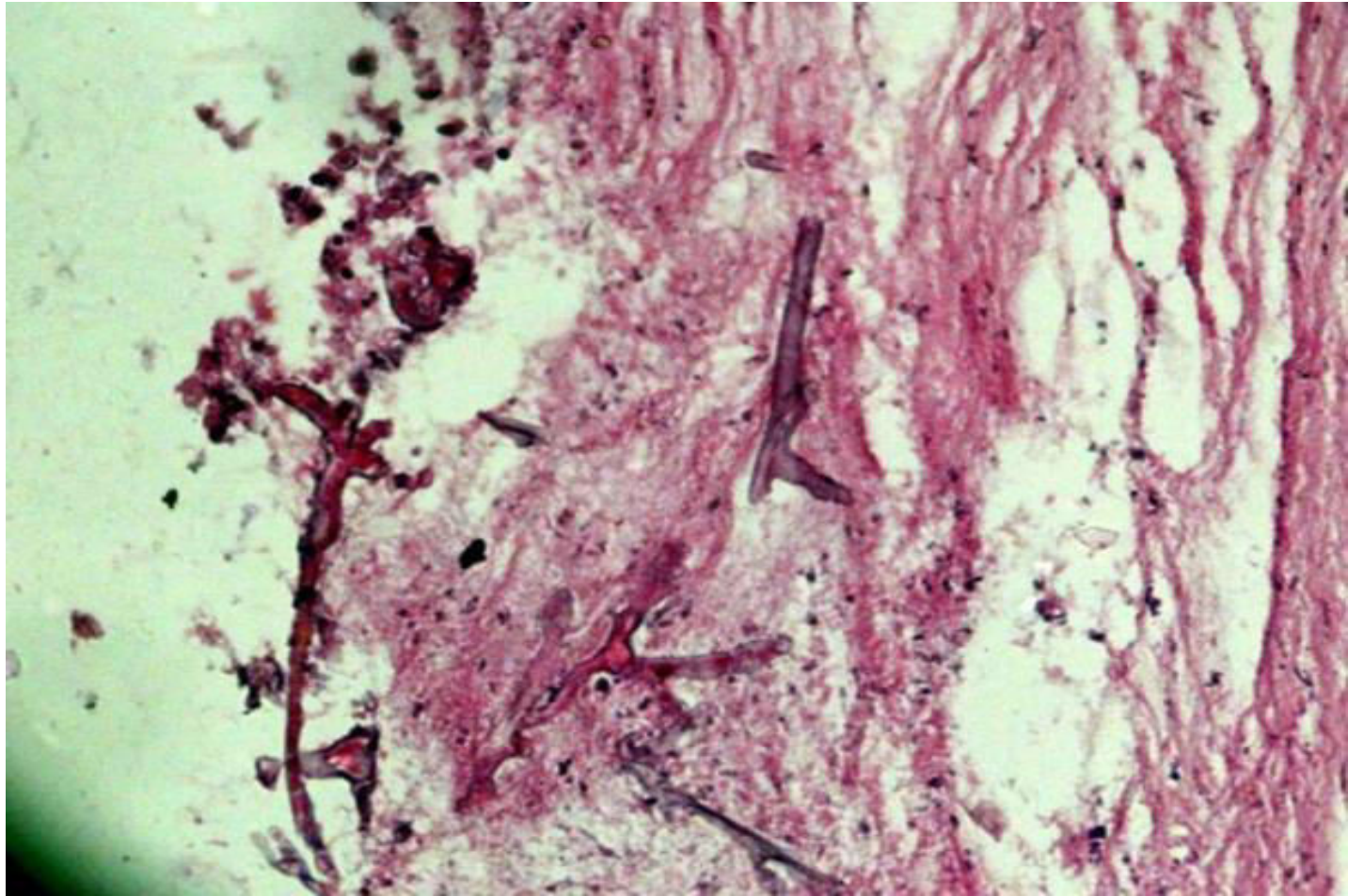


Microscopic examination

- **Fungal load** : mild 2, moderate 5 and marked 3
- **Morphology** : broad aseptate hyphae 2, broad aseptate ribbon like hyphae 5 and broad right angled hyphae 3.
- **Composition of inflammatory cells** : marked neutrophils , mild lymphocytes and plasma cells.
- **Granulomatous inflammation** present in 8 cases and absent in 2 cases



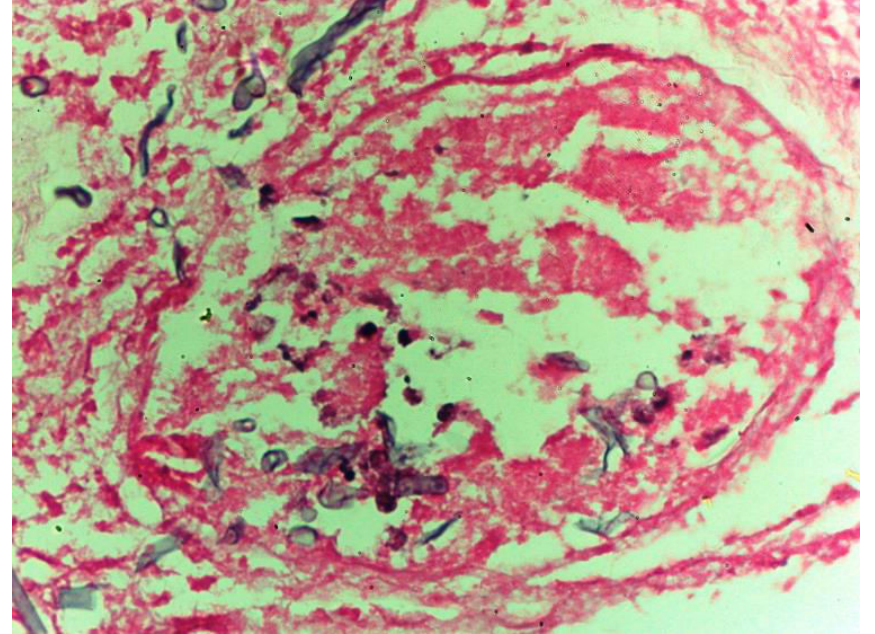
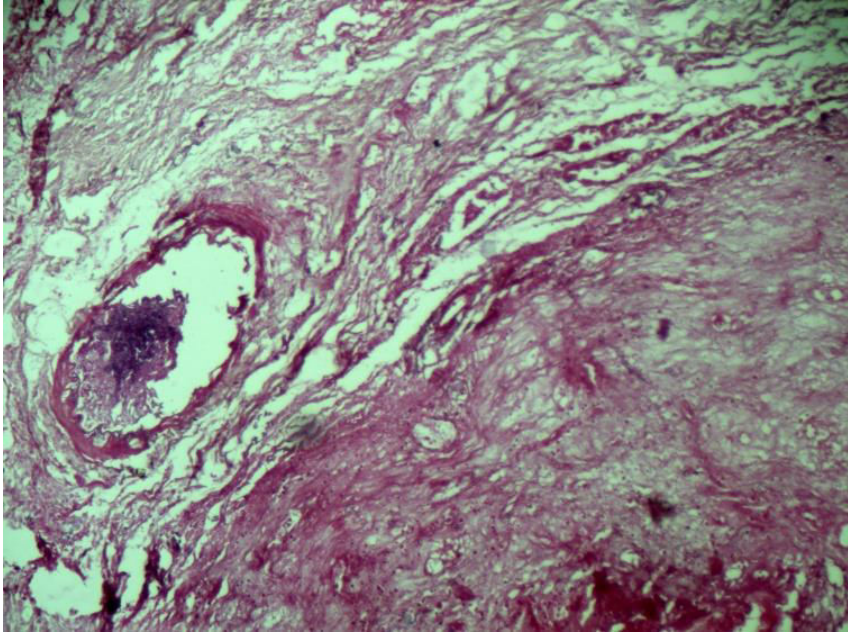




Microscopic examination

- All have ischemic necrosis and fungal load is more in necrotic area.
- Angioinvasion by fungus seen in 8 cases and not seen in 2 cases and mostly arterial invasion.
- Thrombosis within the lumen of vessels present
- No neural and perineural invasion





- ROCM is caused by opportunistic fungi belonging to genus mucar.
- Fungal spores are gain access through inhalation and spread via sinus into the orbit and finally invading the brain .
- They are highly invasive and all 10 cases was invasive type.
- Fungal load in the tissue is directly proportional to the severity of clinical disease and survival rate.



Conclusion

- There is positive correlation between histopathological features of tissue samples and clinical manifestations staging.
- 90% survival rate in all study subjects show that drastic decision to do orbital exenteration is justified as a life saving measure in certain ROCM patients with clinically unsalvageable eyes.



Thank you

