



RETROBULBAR INJECTION OF LIPOSOMAL AMPHOTERICIN B IN RHINO - ORBITAL MUCOR MYCOSIS - A RAY OF HOPE

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ABSTRACT

Aim of our study was to study the role of Retrobulbar Injection of Liposomal Amphotericin B in patients with mucormycosis. This was Prospective Interventional study done in tertiary care hospital on 135 cases.

All the cases with proven fungal invasion of orbits/orbital apex/Retrobulbar fat/Extraocular muscles or fungal Biopsy proven were administered Retrobulbar Liposomal Amphotericin B injection 3.5 mg/ml. **Results-** Out of 135 cases of mucormycosis included in study, 91 cases showed orbital involvement. Out of this 51 cases (62%) showed improvement in ocular symptoms. 11 cases (12%) had deterioration in ocular signs and symptoms despite of giving injection and thus considered for Exenteration. 24 cases (26%) were neither improved nor deteriorated. **Conclusion-** The patients of mucormycosis without cerebral involvement can be subjected to Retrobulbar Liposomal Amphotericin B injection can reduce the spread of the disease, conserve vision, control ocular symptoms and spare the globe.

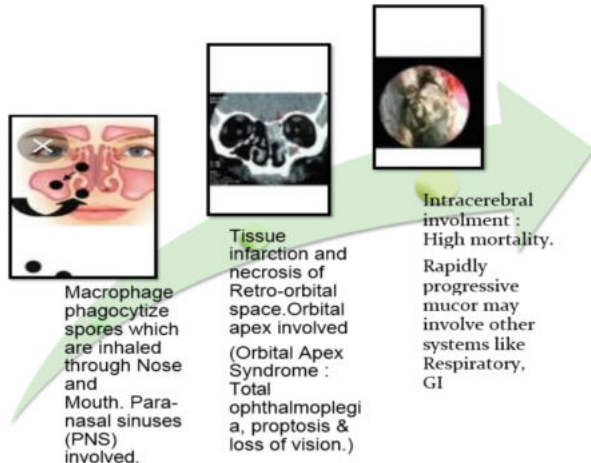
KEYWORDS : Amphotericin -B , Mucormycosis, Retrobulbar injection, Exenteration

INTRODUCTION MUCORMYCOSIS

- The pandemic of COVID-19 infection, second wave, swept along to another epidemic of **Mucormycosis** :Blackfungus(misnomer).
- Angioinvasive, potentially lethal.
- Saprophytic opportunistic fungi of family mucoraceae, genera -mucor, absidia, rhizopus also called as **Phycomycosis&Zygomycosis**.
- Exact incidence is not known. Prevalence is 70 times more in developing countries like India & in developed countries, 0.02 to 9.5 cases/1 lakh population.
- 89 cases per year (2013-2015). Since February 2021, exponential growth seen.
- Most commonly reported in India -**Rhino-Orbital-Cerebral Mucormycosis**
- Mode of transfer : Spores inhaled through mouth & nose.

Year	Annual Incidence
1990-1999	12.9
2000-2004	35.6
2006-2007	50

PATHOGENESIS

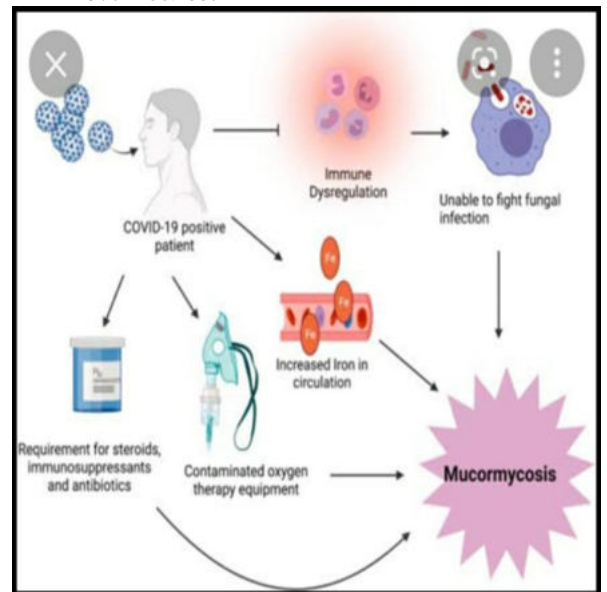


RISK FACTORS

- **Uncontrolled diabetes mellitus**(most common cause).
- SARS-COV-2.
- Prolonged ICU stay.
- Corticosteroid therapy.
- Intubation/mechanical ventilation/O₂therapy.
- Case of concurrent or recently (3 weeks or high dose > 1 week) Tocilizumab other immunomodulators and immunosuppressive therapy.
- Excessive use of zinc in covid patients (Zinc act as a growth factor for mucor).

Over All Mortality:

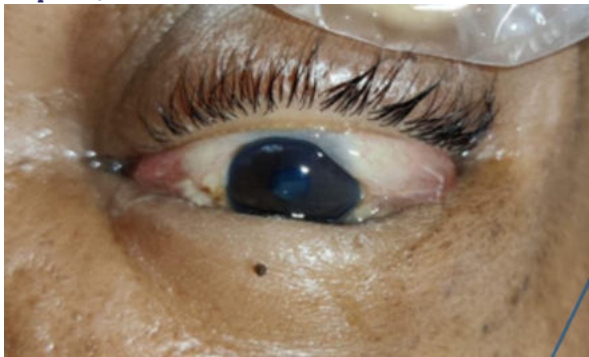
- Pulmonary Mucormycosis :50-70%
- Rhino-cerebral :30-70%
- CNS involvement :>80%
- Disseminated :>90%
- AIDS : almost 100%



Clinical Features



Proptosis, Lid edema



Chemosis



RE Ptosis



LE EOM Restricted

AIM:

To study the role of retrobulbar injection of liposomal Amphotericin -B in patient with mucormycosis(rhino-orbital).

Type Of Study:

A prospective interventional study.

Place Of Study:

Tertiary Health Care Centre.

Inclusion Criteria:

- 1) Patients with symptoms, signs & history suggestive of mucormycosis.
- 2) All the cases with proven fungal invasion of orbits/Orbital apex/Retrobulbar fat/EOM.
- 3) Patients with positive for fungal biopsy.

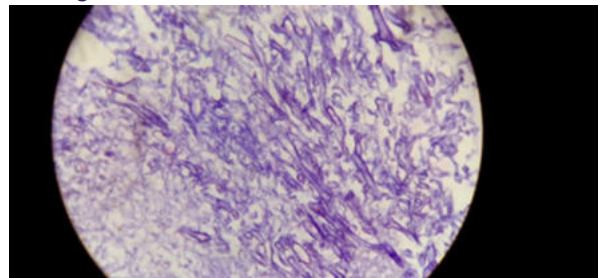
Exclusion Criteria:

- 1) Patients negative for fungal biopsy.
- 2) Patients not willing to participate in study.

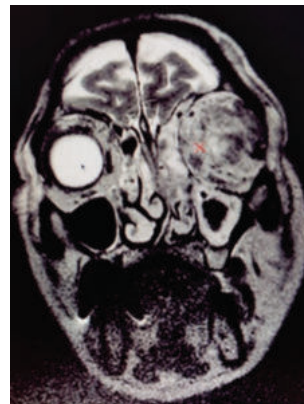
MATERIALS AND METHODOLOGY

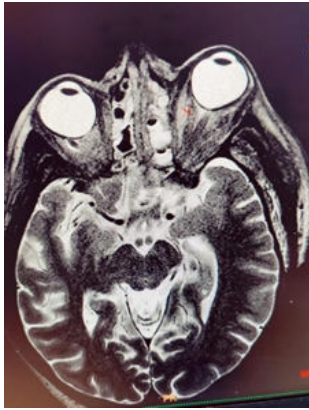
- Study on 135 patients admitted in tertiary care centre with mucormycosis.
- Diagnosis confirmed using:
 - 1) Lab Parameters :CBC, ESR, FBS, PPBS, HbA1c, LFT, KFT
 - 2) KOH Mount (Staining & microscopy)
 - 3) Diagnostic nasendoscopy
 - 4) Radiological investigations :CT(PNS +Orbit+Brain Plain & contrast), MRI(PNS +Orbit+Brain Plain & contrast).
 - 5) Histopathology
 - 6) Fungal Culture

Investigations



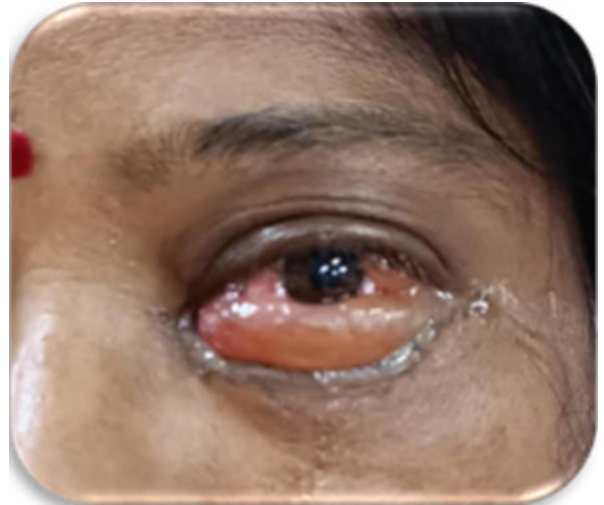
Histopath





MRI

- Out of 135 patients, 91 patients shows ocular involvement without cerebral manifestations.
- Liposomal Amphotericin-B injection (3.5mg/ml in 1ml) till 3-5doses
- depending on staging & severity given daily/alternate days.
- BSL, Electrolytes, HB, LFT, KFT monitored.
- Supportive management - moxifloxacin 0.5% eye drops 4-6times daily.
- Repeated doses on the basis of clinicalreponse.



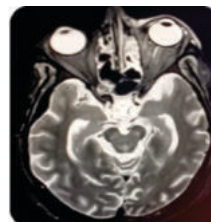
Pre Injection photo



After 2 Injection



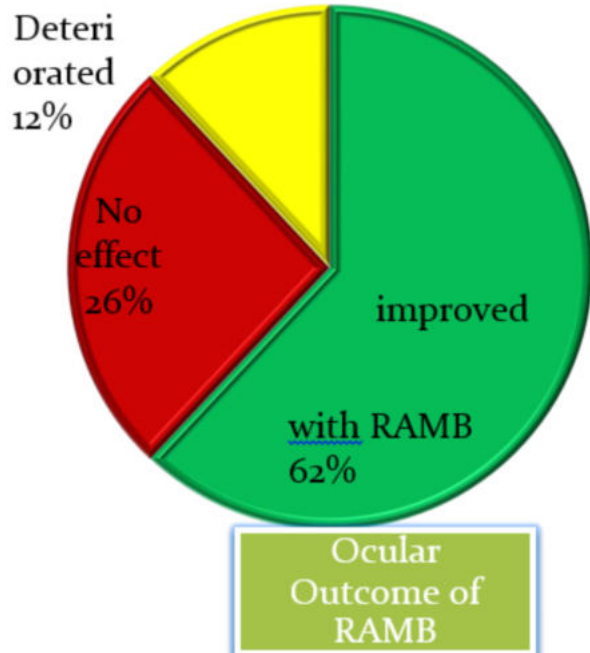
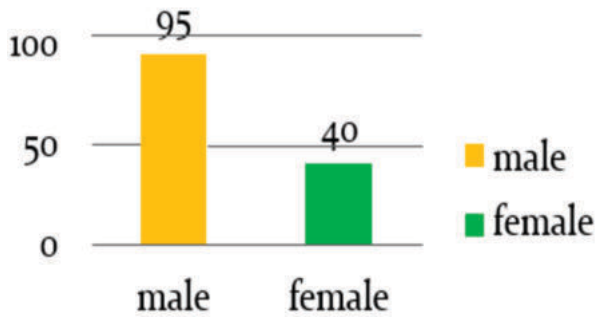
Post Injections

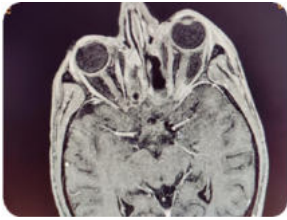


Pre Injection MRI

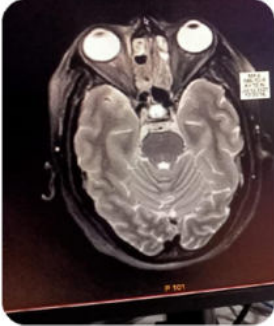
RESULT

Gender wise incidence

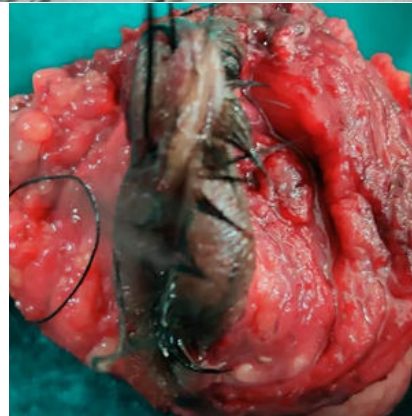




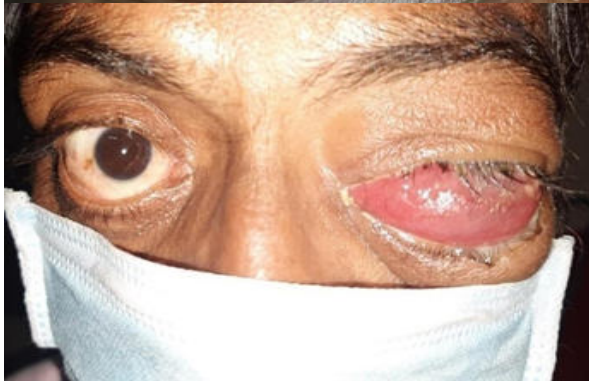
After 2 doses MRI



Post Injection MRI



Intraop Images Of Exenteration



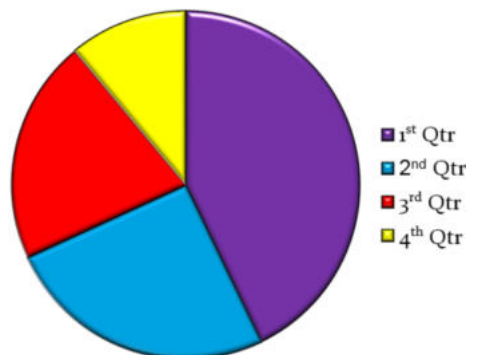
Deteriorated Cases

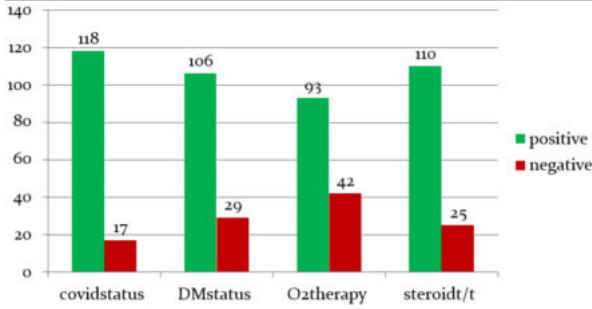


Age Wise Incidence

- 1st Qtr: > 50yrs
- 2nd Qtr: 40-50yrs
- 3rd Qtr: 30-40yrs
- 4th Qtr: upto30yrs

Age group	No of patients
>50	39
40-50	23
30-40	19
Upto 30	10





Risk Factor Incidence

Incidence Of Ocular Signs & Symptoms

Ocular Presenting Features	PATIENTS NO (Out of 91)	%
Periorbital edema & discoloration	58	63.73
Proptosis	32	35.16
Chemosis	21	23.07
Ptosis	27	29.67
Decreased Vision	29	31.86
Ophthalmoplegia	13	25.27
Exposure keratitis	9	9.89
Movement restriction	19	20.87
No PL(Light Perception)	11	12.08

MUCOR Management(out Of 135 Patients 116 Operated)

Management	No Of Patients
FESS(Functional Endoscopic Sinus Surgery)	84
Partial/Total Maxillectomy	58
Zygoma Debridement	1
Debridement of orbital floor	2
Exenteration of eye	11
Mandibulectomy	1

DISCUSSION

- Prognosis depends on time of diagnosis.
- Vision could be saved.
- Complications due to delay in diagnosis.
- Retrobulbar administration on consecutive days, later shifted to alternate days, prevented fatal complications.
- Among the 91, 62% showed improvement with RAMB, 26% cases neither improved nor deteriorated, 12% cases deteriorated despite RAMB & required ocular exenteration.

CONCLUSION

- Mucormycosis can be treated with multispecialty approach.
- Screening effective tool for early diagnosis & prevention of inevitable complications.
- Screening using simple tests like vision, pupil, ocular motility & sinus tenderness.
- Early intervention using RAMB had proven elixir of life in mucormycosis patients.
- Thus the patients of mucormycosis without cerebral involvement can be subjected to liposomal RAMB, help to reduce spread of disease, conserve vision, control ocular symptoms & spares the globe.

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