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Original Research Paper

Ophthalomology

TO STUDY OCULAR INVOLVEMENT AND OUTCOME IN ESTABLISHED CASES OF RHINO-ORBITO-CEREBRAL MUCORMYCOSIS ADMITTED AT GMERS, GOTRI.

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ABSTRACT

Objective- To study ocular involvement and outcome in these patients after rigorous medical-surgical management. **Method–** A Retrospective Study carried out at GMERS Hospital, Gotri. All patients admitted from April 2021 to August 2021, with past history of Covid-19 and biopsy proven Mucormycosis have been included in the study and were subjected to complete history taking, ophthalmological examination and imaging studies. All patients were treated by multidisciplinary approach with Intravenous Amphotericin B (IVAMB) and Transcutaneous Retrobulbar Amphotericin B (TRAMB) +/- Exenteration depending on the extent of involvement. Statistical analysis was done using Binomial test and P value <0.001 was taken in significance. **Result–** Total patients included in the study were 205. Total patients with ocular involvement was 63. Out of total patients with ocular involvement(63), 27 had full ocular recovery and 36 had partial ocular recovery. Ocular recovery was documented based on visual acuity and clinical ocular findings of the patients during course of treatment(after atleast 21 doses of IVAMB and 5 doses of TRAMB). Total patients posted for Exenteration were 4. Total mortality was 3. **Conclusion–** This study documents the number of patients that had ocular involvement and the outcome in these patients after a meticulous collaborative treatment. A considerably large number 63/205 (30.7%) of patients had ocular involvement out of which, lesser number 27/63(42%) had full ocular recovery while larger number 36/63(57%) had partial ocular recovery which was due to an extensive involvement of orbit at presentation and rapid spread, reflected in imaging studies. Patients posted for Exenteration (4/205)(1.95%) and the Total Mortality (3/205)(1.46%) was substantially low due to timely diagnosis, imaging and antimicrobial therapy, thus saving both sight and life in this dangerous infection.

KEYWORDS : Mucormycosis, Ocular involvement, Outcome.

INTRODUCTION

- The second wave of covid 19 has been a disaster for the entire population. Otherwise known as a rare disease, Mucormycosis, saw a sudden rampant spike (specifically the rhino-orbito-cerebral variant) in various parts of the country as a result of large number of hospitalisations due to covid 19 infection.
- Mucormycosis is a rapidly progressing fungal infection caused by filamentous fungi in the Mucoraceae family and is frequently seen in diabetic and immunocompromised patients. Mucormycosis is categorised as Rhinocerebral, Pulmonary, Cutaneous, Gastrointestinal or disseminated depending on organ involvement.
- Rhino-orbital infection begins when fungal spores are inhaled and invade the nasal mucosa, and sinusitis develops as the fungus spreads to the paranasal sinuses.
- The orbital involvement occurs when the infection invades the orbital wall from the paranasal sinuses.
- Symptoms and signs may include pain, vision loss, ptosis, proptosis, chemosis and ophthalmoplegia. Ophthalmoplegia arises from infection of the muscles and orbital space or when the third, fourth and sixth cranial nerves are affected.
- Peripheral seventh cranial nerve paresis or paralysis and hypoesthesia of the face are often observed.
- This study was undertaken to document the clinical ocular findings and treatment outcomes in established cases of rhino-orbito-cerebral Mucormycosis admitted at GMERS, Gotri.

AIM

To document established (biopsy positive) cases of Rhino-orbito-cerebral Mucormycosis admitted at GMERS, Gotri during second wave of Covid-19.

OBJECTIVE

- Study ocular involvement in these admitted patients of ROCM.
- Study visual outcome of these treated patients using conservative and / or surgical methods.

METHODOLOGY

- A Retrospective Study carried out at GMERS Hospital, Gotri. All patients admitted from April 2021 to August 2021, with past history of Covid-19 and biopsy proven Mucormycosis have been included in the study and were subjected to complete history taking, ophthalmological examination and imaging studies.
- All patients were treated by multidisciplinary approach with Intravenous Amphotericin B (IVAMB) and Transcutaneous Retrobulbar Amphotericin B (TRAMB) +/- Exenteration depending on the extent of involvement.
- Statistical analysis was done using Binomial test and P value <0.001 was taken in significance.

Inclusion Criteria

- All established cases (biopsy positive) males and females admitted in Mucormycosis ward / ICU and giving consent for the study.

Exclusion Criteria

- Any individual not giving consent for the study.
- Biopsy positive rhino-orbito-cerebral Mucormycosis patients not having known history of Covid-19.
- Age less than 21 years.

Study Procedure

Documentation has been done based on information derived

from all patients admitted at GMERS, Gotri with symptoms of rhino-orbito-cerebral Mucormycosis after detailed history taking, visual acquity testing, ocular examination (torch light / slit lamp) and necessary interventions :

➢ Conservative method

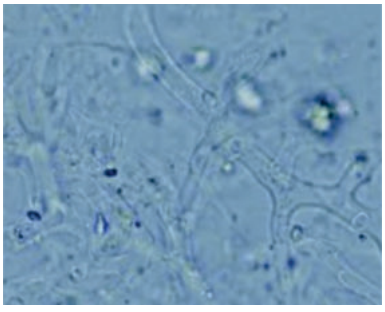
1) Injectable Amphotericin-B was administered intravenously to all the Biopsy positive ROCM patients.
2) The dosage continued for a period of 21 days.

➢ Radiological imaging

1) MRI Brain + orbit + paranasal sinus was done in patients with gadolinium contrast to measure the extent of disease.

➢ Microbiological examination

1) Nasal endoscopic sample was taken and sent for microbiological examination.
2) 10% Potassium Hydroxide mount was used for this purpose.



➢ Surgical procedure

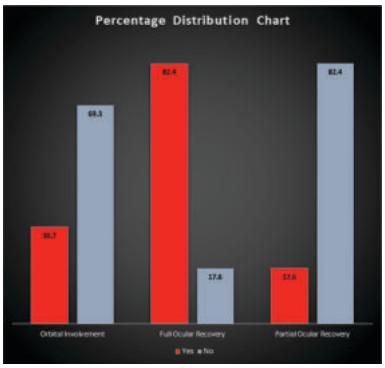
1) Orbital exenteration was planned for patients based on clinical and radiological criteria.

OUTCOME

FREQUENCY TABLES (n=205)

		Frequency	Percentage
Orbital Involvement	Yes	63	30.7
	No	142	69.3
Full Ocular Recovery	Yes	169	82.4
	No	36	17.6
Partial Ocular Recovery	Yes	36	17.6
	No	169	82.4
Exenteration	Yes	4	98.0
	No	201	2.0
Death	Yes	3	98.5
	No	202	1.5

Graphical Representation



INTERPRETATION

➢ A significant percentage (30.7%) of patients had orbital involvement.
➢ Majority of these patients (82.4%) had full ocular recovery while only 17.6% had partial ocular recovery.
➢ Very small number (4 out of 205) of patients were posted for orbital exenteration.

Significance Of This Study

- Since Mucormycosis has been a rare disease which saw a rampant spread after the second wave of Covid-19, this study was undertaken to document overall status of orbital involvement and outcome of the same which could form the basis for development of future management protocols and gave an idea of visual prognosis.
- Majority of patients having full ocular recovery signifies that timely diagnosis and intervention can control the spread of this disease.
- Amphotericin-B administered intravenously (@ 1mg/kg per day) for minimum of 21 days worked as a wonder drug for this disease.
- Partial ocular recovery was seen in patients who presented late with extensive orbital involvement.
- The number of patients posted of orbital exenteration was less because of timely management. Hence patients were saved from this destructive procedure that could have resulted incosmetic deformity and psychological trauma for life.