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MUCORMYCOSIS DUE TO UNCONTROLLED DIABETES A CASE REPORT

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ABSTRACT
Mucormycosis is also known as black-fungus. It is a difficult-to-manage infection and has limited diagnostics tools and therapeutics options. The incidence of mucormycosis is increasing. It is earlier called zygomycosis. The diagnosis and treatment of mucormycosis is challenging. It mainly affects those who are immunocompromised and the patients with uncontrolled diabetes and patients including hematological malignancies, Neutropenia. The disease manifest through rhinocerebral and pulmonary disease. Early recognition of fungal infection is critical for the treatment to be success and initiation of antifungal therapy with loposomol Amphoterecin B is the drug of choice for antifungal treatment, Posoconazole, Isavuconazole. Successful management of mucormycosis is based on reversal or discontinuation of predisposing factors and early administration of active fungal agents and complete removal of infected tissues. The mortality rate of the disease remains high. It has limited clinical experience are iron chelation and immunotherapy. The pathology is understanding by diagnostic tools including computed tomography and serum polymerase chain reaction, cultures are the corner stones of diagnosis and therapeutic options.

KEYWORDS: Mucormycosis, PCR, Liposomal amphotericin B, Isavuconazole , Posaconozole, Zygomycosis, Diabetes mellitus, fungal infection, Black fungus.

INTRODUCTION

Mucormycosis is a rare and emerging function infection which results in high mortality and morbidity. Mucormycetes belong to the order Mucorales and subphylum mucoromycotinia.[1] It mostly occur in hematology and solid organ transplant or diabetic patients and the patients with immunocomponent patients.[2] These infections are difficult to manage for several reasons.[3] In vitro resistance to several antifungal drugs limits therapeutic options.[4] Most common clinical presentations are rhino – orbito cerebral add and pulmonary disease. Mucormycosis is ubiquitous in nature and estimated number the numer of fungal species to be as 5.1 million.[5] Treatment for invasive fungal disease is surgical debridement because sysytemic tissues cannot reach the infected tissues due to the vaso-occlusion. The involved tissues rarely bleeds bleeding tissues is the ideal end point. Reconstructive surgery only be considered after recovery from infection.[6] Common symptoms include sinusitis, headache, nasal stuffiness and purulent discharge, fever and one-sided facial swelling pain may be present or absent at the time of presentation.[7] Mortality rate quoted in literature survey from 20% to 70%.[8] Diabetic patients are mostly likely to have sino-orbital disease.[9]

CASE REPORT

A male patient of age 45 years with the history of diabetes mellitus and Hypertension came to the emergency department who presented with the symptoms of severe headache since 1 week and facial pain at right side, difficulty in chewing, dropping of eyelid on right side with numbness over right half of face.

Patient did not test positive for covid in the past.

No previous history of surgical intervention.
Clinically noticed the pain and swelling over right eye. There was also loss of sensation along with distribution of the maxillary branch of the trigeminal nerve.
Significant blood test results were GRBS found to be elevated. No history of blood transfusion.

His past medical history was significant for hypertension and diabetes mellitus with uncontrolled sugars but the patient discontinued the DM medications for 1 year.

Physical examination: Patient could not open right eye and investigations found to be GRBS (418mg/dl) BP 150/90mmhg, Hb of 15.10 gm%, WBC= 19,920 cells/cumm, Random plasma glucose 571 mg/dl, Hb

A1C of 15.60 and and the patient was hospitalized for clinical test and treatment. CT PNS of the orbits and sinuses shown that deviation of nasal septum towards left. Mucosal thickening in bilateral frontal, maxillary, sphenoid and right ethamoid sinuses with air fluid levels in the right maxillary sinus. MRI brain + contrast suggestive ofchronic lacunar infarcts noted in bilateral basal ganglia. Grade I small vessel ischemia. Patient was taken for diagnostic and therapeutic Endoscopic debridement of sinuses done under local anaesthesia.

Diagnosis: Pan sinusitis on the right side suspecting mucormycosis.

It was not a post covid complication.

Debridement of sinus lining was done and was sent for and histopathology and KOH stain. KOH tissue revealed gram positive budding yeast with pseudohyphae. Patient was then continued on Inj liposomal Amphotericin –B and managed with IV antibiotics, anti fungal, and other supportive care uncontrolled diabetic are managed with insulin and by tablet Glycomet GP1.

DISCUSSION

The case reported here is mucormycosis of the rhino-orbital form with the involvement of ethmoid sinuses.[10] Death may occur within two weeks if untreated or unsuccessful treated. Mucormycosis was first described by Paultauf in 1885.[11] Commonly mucormycosis attacks people with compromised immune systems. Reduced ability of the serum to bind iron at low pH may be a defect in the body's defense system.[12] The most common condition is diabetes. Diabetic patients are predisposed to the mucormycosis because of decreased ability of their neutrophils to phagocytise and adhere to endothelial walls.[13] Acidosis and hyperglycemia provide an excellent environment for fungus to grow.[14] Orbital and nasal findings are the most common presenting symptoms and signs. Orbital involvement may include loss of function of cranial nerve with orbital pain, dilated pupil, and loss of vision.[15]

CONCLUSION

The management of mucormycosis demands a multidisciplinary approach. The results are not always satisfactory and there are irreversible sequelae with irreparable functional damage. Prognosis may improve with rapid diagnosis, early management, and reversible underlying risk factors. Patients with invasive mucormycosis infection can survive with minimal morbidity and excellent outcome.

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Ethical Approval

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Competing Interests

Authors have declared that no competing interests exist.

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