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A CASE REPORT – AN UNUSUAL PRESENTATION OF SINO-NASAL MUCORMYCOSIS

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ABSTRACT

Mucormycosis is a common fungal infection noted in individuals who are immune-compromised. It very rarely affects healthy individuals**.** A 69year-old male patient presented with complaints of vomiting 3-4 episodes, swelling and closure of upper eyelid of right eye with mild pain in the right eye. The patient is a known case of Diabetes for the past 4 years and a known case of hypertension for 1 year. There was a past history of right side nasal polyp (4 years ago) and sigmoid colon malignancy. Right sided nasal poly was treated surgically with fundal endoscopic sinus surgery. The Sigmoid colon malignancy was diagnosed in November 2018 for which patient had underwent sigmoid colon resection and completed 5 cycles of chemotherapy. Relevant investigations were done and diagnosed to have sino nasal mucormycosis. Patient was started on Injection Amphotericin B intravenously at a dose of 1.0-1.5 mg/kg daily and planned for surgical debridement.

Keywords: Mucormycosis, Immuno-compromised, Amphotericin B

INTRODUCTION

Approximately 1.5 million fungal species inhabit Earth, with majority of them are poorly described or undiscovered. The exposure of human to fungal elements is unavoidable with normal respiration, because normal respiratory process routinely deposits fungal hyphae within nose and paranasal sinuses **[1, 2]**. Fungal species can cause Sino nasal disease, which when untreated can spread to orbit and brain leading to serious complications and death **[3-5]**. Mucormycosis is the term used to describe infections caused by nonseptate fungi belonging to the class Zygomycetes **[2]**. Infection caused by this group of fungus most commonly affects immune compromised individuals. The predisposing factors are diabetes mellitus, malignancy, immunosuppressive therapy, renal failure, tuberculosis, AIDS burns and in other immune compromised conditions. Mucormycosis rarely affects otherwise healthy people **[6]**. The common symptoms are nasal obstruction, recurrent sinusitis, persistent postnasal drainage, hyposmia, anosmia, changes in sense of taste, less commonly facial pain and even bone destruction.

CASE REPORT

A 69year-old male patient attended ophthalmology Out Patient Department with complaints of 3-4 episodes of vomiting, swelling and closure of upper eyelid of right eye, mild pain in right eye for 2 days**.**

Patient is a known case of Diabetes for past 4 years, taking Injection Human Actrapid 4U once daily and metformin twice daily. He is also a known case of Hypertension for 1 year and being treated with Amlong 5mg twice daily.

History of sigmoid colon malignancy present, diagnosed on November 2018 for which patient underwent sigmoid colon resection and completed 5 cycles of chemotherapy. History Fundal Endoscopic Sinus Surgery done on right side before 4 years for right side nasal polyp. No History of Tuberculosis, Asthma. No History of trauma, recent travel or nose picking habit.

Table 1: Ophthalmological examination of right and left eye

RIGHT EYE	LEFT EYE
Ecchymosed. **Ptosis present.** **Proptosed.** **No movement.** **Pupil not responding.** **Conjunctiva- chemosis present** **Cornea- clear.** **Lens – Immature cataract.** **Visual Acuity -6/60** **Undiluted fundus examination of right eye: Media-clear, Optic disc-normal, Grade II Hypertensive retinopathy.**	**Pupil Reacting to light.** **Movement normal.** **Visual Acuity 6/6.**

Complete blood count showed- Total RBC Count-3.59 million/cu.mm, PCV 33.0%, Platelet count 0.84 lakhs/cu.mm, Total WBC 20890cells/cu.mm, Neutrophils 89.6%, Lymphocytes 5.7%, Eosinophils 0.7%, Monocytes 3.9%, Basophils 0.1%, and Haemoglobin 11.2 gm/dl.

ENT opinion was obtained and it was suggested CT Orbit and Direct Nasal Endoscopy which was done.

CT orbit showed: Soft tissue density with hyper dense areas seen in left frontal and bilateral ethmoid sinuses and right posterior nasal cavity and choana- sinus nasal polyposis with possible secondary fungal infection. Mild right proptosis

Direct Nasal Endoscopy showed: Blackish polypoidal mass filling right nasal cavity which bleeds on touch, Biopsy taken and the specimen received in the Dept. of Microbiology, at SreeBalaji Medical College and Hospital. Direct gram staining revealed no bacterial organism. Wet mount with (KOH) revealed broad, ribbon like aseptate hyphae branching at right angles **Figure 1**. Specimen was inoculated in Sabourauds Dextrose Agar (SDA) and incubated at 25^0C in BOD incubator. The colonies, which are initially white turned brown cottony with a characteristic 'salt and pepper' appearance. Lacto Phenol Cotton Blue tease mount of colonies showed rhizoids directly beneath unbranched erect sporangiophores with sporangium, which is a characteristic appearance of rhizopus. The morphology was confirmed by slide culture method **Figure 2**.

Patient was started on InjectionAmphotericin B intravenously at a dose of 1.0-1.5 mg/kg daily and planned for surgical debridement **Figure 3**.

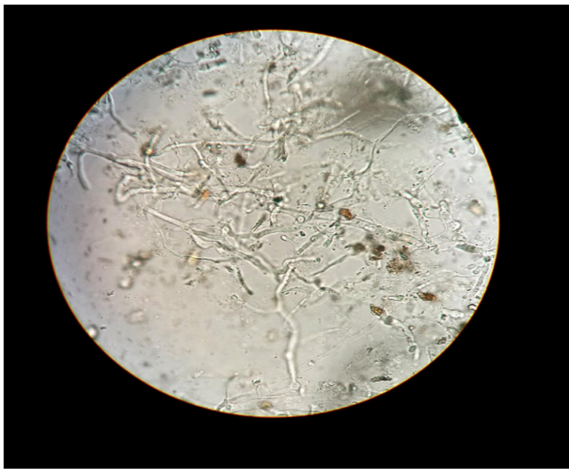

Figure 1: KOH mount shows broadribbon like aseptatehyphae branching at right angle

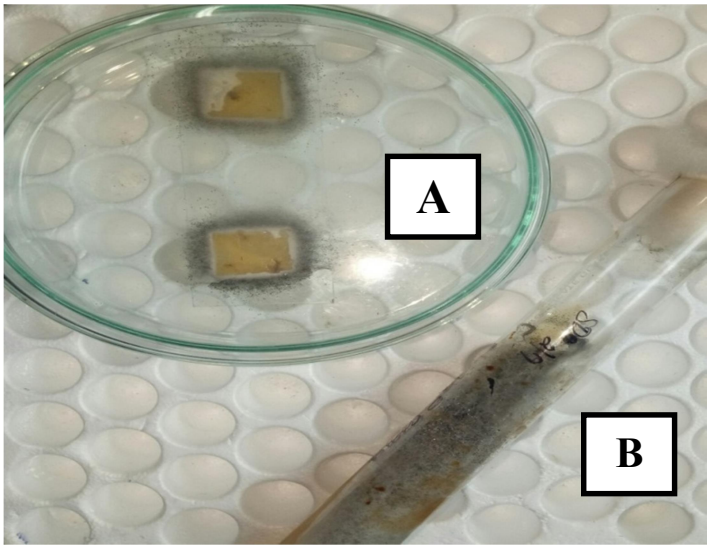

Figure 2: A) Slide culture method B) SDA Slant shows dark grey cottony colonies

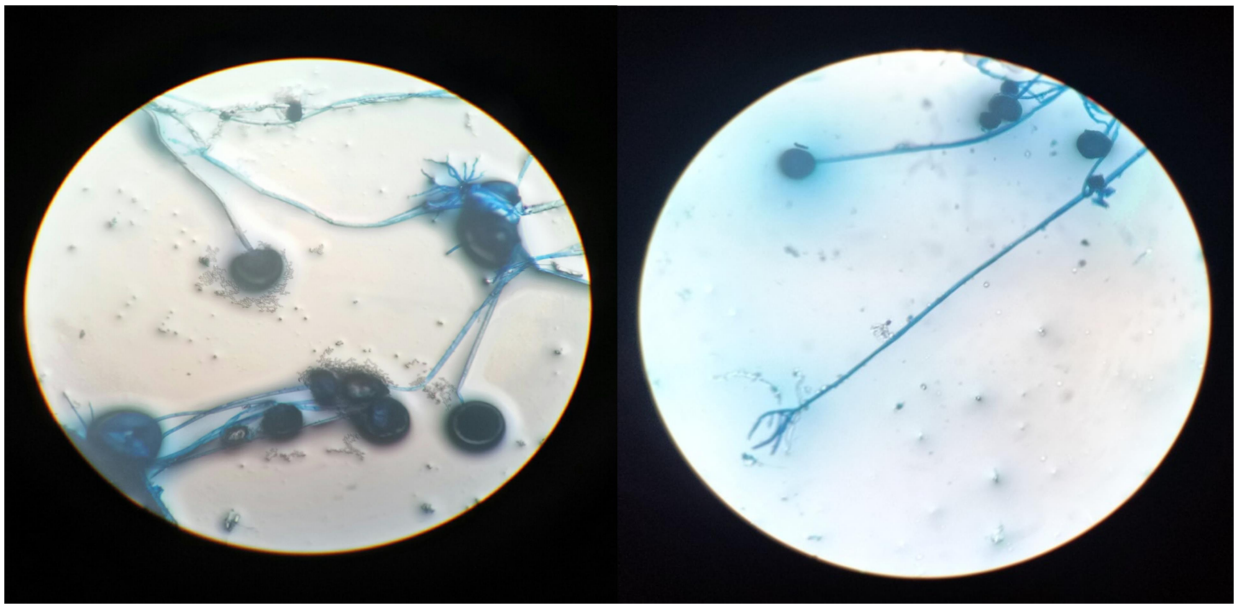

Figure 3: LPCB mount showing rhizoids, sporangium and sporangiophores

DISCUSSION

We have presented a case of mucormycosis in immune compromised patient presented with orbital complications known as orbital mycosis. Sinonasal mucormycosis is a relatively uncommon disease in healthy individual, but common in any immune compromised individual such as patient with leukemia, other malignancy renal failure, immunosuppression therapy, solid organ and bone marrow transplantion, leukemia, and having other immunodeficiency states. The causative organisms are members of the family mucoraceae. *Rhizopus oryzae* is the predominant pathogen and account for 90% of rhinocerebral case of mucormycosis **[7, 8]**.

It can affect the lung, CNS, GIT, Skin (usually in burn patients) but is best known for it's rhino cerebral and rhino orbital presentation, which is usually initiated with sinonasal involvement and may progress to involve orbit and brain **[9, 10]**.

In India it was found that rhino-orbito-cerebral type (44.2%) was the commonest followed by cutaneous (15.5%) and renal (14.0%) involvement **[10]**. In diabetic, the pathogenesis is due to angioinvasive character causing blood vessel thrombosis and tissue necrosis. Inhalation of airborne spores causes mucormycosis of head and neck. Germination occurs in the nasal mucosa, followed by penetration of hyphal element and by direct extension or through vascular channels it affects the paranasal sinus, orbit, eye and the brain **[2]**. The treatment of choice is to treat the underlying cause of immunosuppression and drug of choice is Amphotericin B intravenously at a dose of 1.0-1.5 mg/kg daily and surgical debridement **[2]**.

CONCLUSION

Mucormycosis is fulminating and fatal condition when it is not diagnosed and treated in appropriate time. It is rare in healthy individual and affect mainly immune compromised individual. It has major complication that may lead to death of the patient. It can present with cutaneous, pulmonary, gastrointestinal, central nervous system, orbital, para nasal symptoms, hence it is essential to know about the presenting features of this fungal infection to diagnose earlier and to start with antifungal drugs as soon as possible.

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