A PATIENT WITH MUCORMYCOSIS AND ASPERGILLOSIS: CASE REPORT

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INTRODUCTION

Mucormycosis and aspergillosis are complicated fungal infections which can be life threatening at many occasions. They are rare, but still found in clinical practice, mainly affects immunocompromised individuals like post-transplant patients on immunosuppressive treatment or patients with diabetes mellitus (DM). Mode of transmission of this serious infection can be hematogenous or inhalational. Possible forms of presentations are rhino-orbito-cerebral, gastrointestinal, pulmonary, cutaneous or disseminated form. Histopathology confirms the diagnosis by demonstrating the organism in the sample. Treatment options include amphotericin B (a parenteral anti fungal) and combined with surgical debridement of the affected area. They can give rise to lethal complications as the disease may adopt aggressive course, hence timely diagnosis and initiation of treatment at earliest play a crucial role in outcome.

In this case report, we discuss a case of a 55-year-old female who had poor glycemic control and who was diagnosed to have both aspergillosis and mucormycosis at the same time. Patient was seen in Fatima Memorial Hospital Lahore, in the month of August, 2017.

CASE REPORT

A 55-year-old Asian female diagnosed case of diabetes mellitus (uncontrolled), hypertension, chronic kidney disease, multi-nodular goiter and history of fever for last 15 days for which she was taking antipyretics at home. She presented to us with loss of vision in left eye, drooping of left eye lid, swelling and sudden onset left sided retro-orbital pain radiating towards left temporal area for the last 8 days.

Examination revealed an ill looking obese, well oriented female with Glasgow coma scale (GCS) of 15/15. Her left eye showed dilated, not reactive pupil, proptosis, restricted extraocular movements, periorbital edema and there was no light perception. Fundoscopy revealed no papilledema (disc margins were clear). Extensive ulceration with areas of crust were seen on examination of the nasal cavity and findings were confirmed by ENT consultant. On the basis of history and physical examination, provisional diagnosis of orbital apex syndrome was made.

Investigations showed HbA1c: 8.1%, serum creatinine 2.1 mg/dl, blood sugar level (BSL) 150-200 mg/dl, random blood sugar 375 mg/dl, total leucocyte count (TLC) 19500/mm3, differential leucocytes count was 90% polymorphs 10%, lymphocytes, serum potassium 4.4 mmol/l, serum sodium 139 mmol/l and serum magnesium was 1.7 mg/dl. Urine examination showed 1-2 pus cells and glucose was ++. Chest x-ray was reported normal.

Nasal endoscopy done by department of ENT revealed necrosed anterior part of middle turinate and middle meatus was blocked by blackish crust, sugges-

ABSTRACT

The objective of this case report was to highlight the significance of curable combined fungal infections which are seen in patients with certain risk factors. Fungal pathologies such as aspergillosis and mucormycosis are invasive infections which can affect pulmonary or extra-pulmonary regions of immunocompromised host. Early diagnosis with the help of imaging and histopathology and treatment with combined medical or surgical therapies can lead to complete recovery. If left untreated, they can be fatal. Here we discuss a case of a patient who was diagnosed with mucormycosis and aspergillosis on histopathology. Patient was treated with systemic antifungals and showed marked improvement after treatment.

Key Words: Mucormycosis, Aspergillosis, Amphotericin B

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tive of probable invasive fungal sinusitis and debride-
ment was advised. Imaging (CT scan) of para nasal si-
nuses (PNS) showed left maxillary, ethmoidal and frontal
sinusitis (Figure 1). Thyroid scan showed multi-nodular
goiter. Tissue culture and sensitivity showed Pseudo-
monas aeruginosa sensitive to Ceftazidime. ENT team
was taken on board in taking care of this patient. De-
bride ment was done and sample for biopsy was taken.
First histopathology report revealed ‘left middle turbili-
nate, nasal septum and anterior ethmoidal bone have
fungal infection’ while another histopathology reported
“fungal organisms with branching septate and non-sep-
tate hyphae consistent with concomitant Mucor and
Aspergillus (Figure 2).

The patient was diagnosed as having invasive asper-
gillosis along with mucormycosis with secondary bac-
terial infection by (Pseudomonas aeruginosa). Patient
was started on liposomal amphotericin B therapy. Her
dose of amphotericin B was adjusted as per glomerular
filtration rate (GFR) of 48 ml/min at 0.5-0.7/mg/kg/day
IV. Serum creatinine, magnesium, potassium, BSL were
monitored during the course of treatment. Surgical de-
bride ment of necrotic tissues of nasal wall and palate
was performed successfully. Optimal BSL was achieved
with insulin regular (R) and insulin neutral protamine
hagedorn (NPH). Antibiotics were started for combat-
ing the bacterial infection as well. Ceftazidime in renal
adjusted dose was given for 10 days.

After starting the antifungal medication and con-
trolling blood sugar levels, patient made a steady prog-
ress, her wound was much better with healthy granula-
tion tissue. It was concluded that with early diagnosis
and aggressive approach (combined medical and sur-
gical modalities of treatment), she responded very well.
No evidence of recurrence was found at 03 months fol-
low-up and the patient was currently asymptomatic.

**DISCUSSION**

Mucormycosis is a fungal infection. It is a rapidly pro-
gressive fatal condition and rarely seen in immune-com-
petent individuals. Aspergillus species are spore-form-
ing fungi found in moist environments. Isolated orbital
fungal infections (aspergillosis and mucormycosis) are
extremely rare entity. Generally, it arises as a contagious
invasion from oropharynx or para-nasal infection3.

Pulmonary and extra-pulmonary infections can be
seen secondary to these fungi, in immunocompromised
as well as immune-competent individuals. The morbidi-
ty and mortality of these infections is very high even in
good set ups. Major risk factors include uncontrolled
diabetes, extremes of ages, steroid use, human immu-
nodeficiency virus (HIV)/ acquired immune deficiency
syndrome (AIDS), patients on immune-suppressants and
recipients of organ transplants. In our case the aspergil-
lus infection was of invasive type. There was no necrosis
or blood vessel invasion but evidence of contiguous tis-
sue destruction was found.

Concomitant infections by aspergillosis and mucor-
mycosis confined to a single area although rare but
have been reported by some authors. Similar cases have
been reported by Vidya et al5, Alfano et al6 and Maiora-
no et al7. Goswami et al8 reported a case of lethal, com-
bined (mucor and aspergillosis) rhino-cerebral fungal
infection in a patient who had renal transplant, where a
prompt diagnosis was established and the patient was

![Figure 1: CT scan of para nasal sinuses showing involvement of frontal, maxillary and ethmoidal sinuses](image1)

![Figure 2: Histopathology slides showing septate and branching fungal hyphae](image2)
managed with both medical and surgical therapy as in our case but unfortunately patient developed septic shock and could not be revived. In this particular case culture initially turned out to be positive for Mucor only. Mucor is known to have a comparatively rapid growth which explains why initial sample were positive for mucor only. However, sample taken later showed both Mucor and Aspergillus infection.

A patient who presents with common symptoms of headache accompanied with visual disturbances and who is known to be immunocompromised needs attention. Prompt workup should be done for early diagnosis of underlying disease. Rhino-orbito-cerebral fungal disease can present with these symptoms and adopts a very rapidly progressive course. If left unattended, it has high mortality rate. A combination of antifungal medications along with surgical intervention is the mainstay of treatment for rhino-orbito-cerebral fungal infections. Combined therapy of liposomal amphotericin with novel antifungal like posaconazole has an advantage over monotherapy with amphotericin8.

## CONCLUSION

Early detection of mucormycosis is crucial since it may rapidly exacerbate as in our patient. Screening of this infection in high risk individuals along with early diagnosis and treatment can lead to better morbidity and mortality outcomes. Antifungals should be considered early if there is high index of suspicion of mucormycosis.

## REFERENCES


