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Case report

Brain Abscess Due to Aspergillus in An Immunocompetent Patient

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Received: March 14, 2016; **Published:** June 01, 2016

Abstract

Fungal infections of the central nervous system (CNS) are almost always a surprising finding. Their presentation is usually subtle, often without any diagnostic characteristics, and they are frequently mistaken for pyogenic abscesses, or brain tumors.

Intracranial aspergillosis is a rare clinical picture, but the mortality rate is very high. Aspergillus is a member of ascomycete's fungi. Aspergillus species are common contaminations of starchy food (such as bread) and grow in or on many plants.

The severity aspergillosis is determined by various factors, but one of most important is a weakened immune system.

We describe a 55 years – old female diabetic patient with a cerebral abscess caused by Aspergillosis. The brain images were similar to space occupying lesions due to malignancies. All of neurosurgeons should be familiar with this diagnosis even in immunocompetent patients.

Keywords: *Aspergillus; Immunocompetent; Central nervous system; CT scan*

Introduction

Intracranial aspergillosis is a rare clinical picture, but the mortality rate is very high. Aspergillus is a member of ascomycetes fungi. Aspergillus species are common contaminations of starchy food (such as bread) and grow in or on many plants [1-3].

Diseases caused by the aspergillus are called aspergillosis.

The severity of aspergillosis is determined by various factors, but one of most important is a weakened immune system.

Infections can affect any area of the body, but by far the most common are the lungs and sinuses. In humans, the major forms of disease are: Allergic bronchopulmunary Aspergillosis, acute invasive Aspergillosis (more common in weekend immune system such as ALDS or chemotherapy patients), disseminated invasive aspergillosis and aspergilloma (or a fungus ball) [4,5].

Brain abscess due to aspergillus is has been reported as case - report from various parts of world.

Cerebral Aspergillosis occurs in about 10% to 20% of all cases of invasive Aspergillosis and has a very poor prognosis. Case fatality rate exceeds 88%.

The poor prognosis of brain abscesses is well documented in the Fred Hutchinson cancer.

Research center series in which 56 of 58 transplant patients who developed a brain abscess died shortly after diagnosis. Early diagnosis, followed by aggressive combined surgical and medical management is necessary.

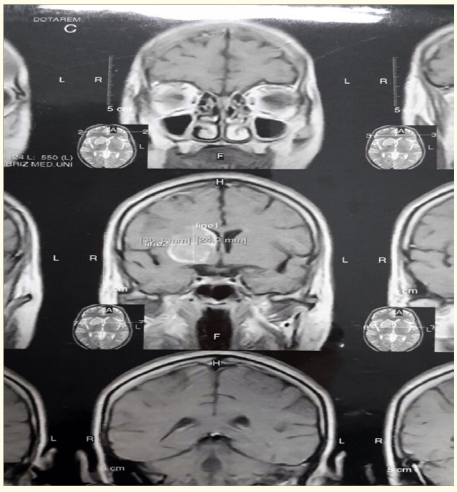
Case

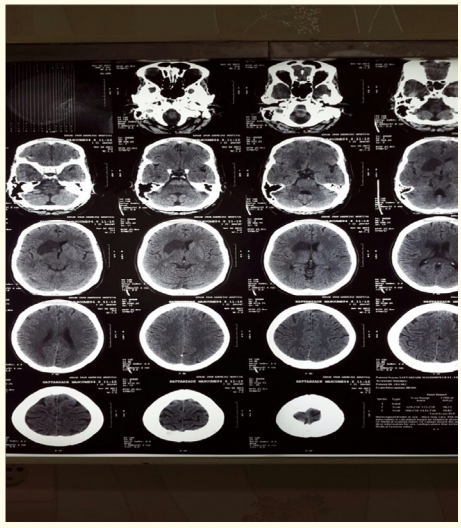
A 55 - years – old female who was diabetic for ten years came with complaints of starred speech, headache lever, and weakness over left half of body. She took irregular anti- diabetic treatment and was poorly controlled on diet. She had headache and fever of one week

duration and became drowsy in due course of time. Laboratory investigations of blood revealed Hb level of 11.2 g /dl and CBC count 15800/cumm [6].

Liver and kend function tests were within normal ranges. In ABG test, pH was 6.97, base excess- 26.5, bicarbonate 2.5 mmol/lit, glucose 32 mmul/ lit.

A urine analysis showed 4 ketones. Blood cultures were obtained and the CT scan was done due to FND. NECT revealed large and irregular hypodense lesion at right putamen and head of caudate nucleus (Figure 1 and Figure 2).





There was no significant edema around the lesion but moderate mass effect causing right lateral ventricular obliteration, without considerable midline shift was noted. Patient admitted to intensive care unit for the management of the case insulin infusion was given along with intravenous flied. Correction at acid - base balance and serum electrolytes achieved during first 48 hours. After initial treatment at DKA patient admitted to neurosurgery ward to supplementary evaluation at brain mass [7-9].

First of all brain MRI without and with contrast obtained. The mass was hypointense in both T1 on T2 sequences. After injection of contrast media ring enhancement was noted around the lesion in right putameck and caudate nucleus. Vasogenic edema was also seen at front - insular lobes. No tumoral enhancement could be seen [10-12].

Moderate mass effect with right lateral ventricular compression without significant midline shift was noted. (Figure 2)

For further evaluation and to reach a tissue diagnosis a stereotactic boain biopsy. During the procedure 15 ml gray colored liquid was aspirated via biopsy needle. The specimen was sent to reference lab for microbial evaluation alery with culture in different culture media [13-15].

The aspirated material was subjected to microscopic examination which showed plenty at inflammatory cells, aggregated of foamy histiocytes, neutrophilic aggregates with and around vessels with some lymphonuclear infiltration [16].

Elongated branches of hyphae were identified within the tissue. No pyogenic organisms were isolated on routine bacteriological media. The fired diagnosis was brain abscess due to aspergillus.

Discussion

Fungal infection of CNS was considered rare until 1970. This is no longer true in recent years due to wide spread use of corticosteroids, cytotoxic drugs and immune suppressant drugs. Immunocompromised patients with underlying malignancy, organ transplantation and AIDS are all candidate for acquire fungal infection either in meninges or brain [17].

Patients with fugal brain abscess, especially who are comprised have a high mortality rate despite combined medical and surgical therapy. The therapy of choice for Aspergillus Lorain abscess is roriconazol. Alternative agents include au amphotericin B preparation, posaconazole and itraconazole.

Aspergillus brain abscess make use of itraconazole more promising as an extortion of successful treatment rather than as primary therapy. Combination therapies that have shown efficacy are voriconazale in conjunction with either caspofugin or mphotricine B. Excisional surgery or drainage is a key factor in successful management of CNS Aspergillosis [18].

Intracranial aspergillosis is a rare pathologic condition, difficult to treat and often fatal which generally affects immunocompromised hosts. Mortality rates in patients with brain abscesses in the pre-antibiotic era and in to the 1970 s were unacceptably high and ranged from 30%-80%.

Since 1970 case fatality rates have ranged from 0% to 24% results attributable to the availability of more effective antimicrobial therapy and the availability of neuro imaging, which allow, early diagnosis and monitoring of response to the therapy.

Factors associated with poor prognosis include a low case and presence of underlying disease and co morbid condition. One important complication that has been associated with poor outcome is intraventricular rupture of the abscess [19].

Long-term sequel include hemi paresis, persistent visual field defect, cognitive dysfunction, learning disorders, hydrocephalus and seizure. Fungal infections of the central nervous system (CNS) are almost always a surprising finding. Their presentation is usually subtle, often without any diagnostic characteristics, and they are frequently mistaken for pyogenic abscesses, or brain tumors. Aspergillosis of the central nervous system is an uncommon infection, mainly occurring in immunocompromised patients. It may present in several forms, including meningitis, mycotic aneurysms, infarcts and a tumoral form. All of neurosurgeons should be familiar with this diagnosis even in immunocompetent patients.

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Volume 3 Issue 3 June 2016