

Invasive Cerebral Aspergillosis in an Immunocompetent Host

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ABSTRACT

Invasive aspergillosis is a disease known to manifest in immunocompromised hosts. It is an opportunistic disease which spreads by air and occurs predominantly in lungs, although dissemination to virtually any organ is possible. We report a case of invasive aspergillosis involving paranasal sinuses and brain, in an immunocompetent host, which masqueraded as primary brain neoplasm radiologically.

Keywords: Invasive Aspergillosis, Immunocompetent host.

INTRODUCTION

Invasive aspergillosis remains the most invasive fungal infection worldwide despite ongoing improvements in medical therapy.¹ Invasive aspergillosis has been reported in patients with profound neutropenia or patients with any form of immunodeficiency. However, invasive aspergillosis is rarely found in immunocompetent patients. Aspergillosis of the CNS is a rare disease, especially if the patient's immune system is not compromised. Because of the high mortality rate of this infection, early diagnosis and prompt initiation of treatment are crucial [1]. Here we present a case with invasive aspergillosis having no underlying immunodeficiency state apparently.

CASE REPORT

A 40 year old male presented with headache, two episodes of seizures and nasal stuffiness with duration of two weeks. On examination a mass was seen coming out of the anterior ethmoids and filling the middle meatus. On nasal endoscopy the mass was seen invading the lamina papyracea and eroding the underlying bone. A contrast-enhanced MRI scan was done and the radiological differential diagnosis was given as Sinonasal adenocarcinoma with brain involvement, Lymphoma & IgG4 Sclerosing disease (Figure 1). An endoscopic transnasal biopsy (Figure 2) was done and subsequent interventional brain surgery was performed and the biopsy was subjected for histopathological examination (Figure 3, 4).

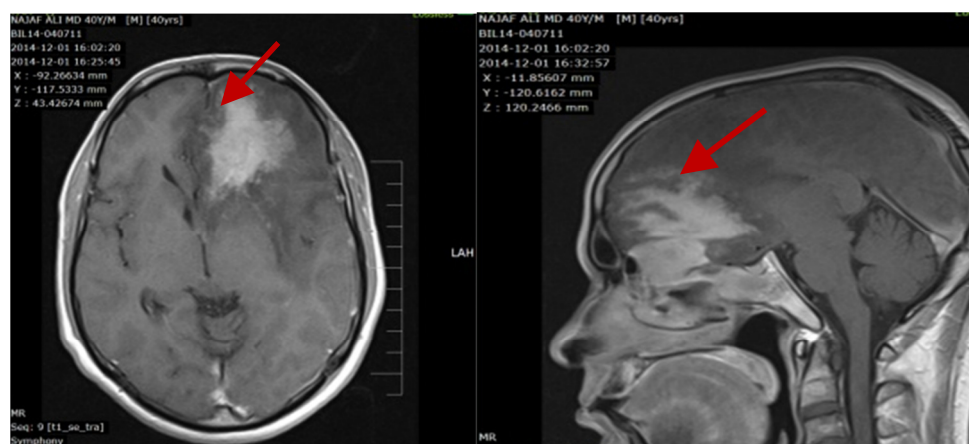


Figure 1. Photomicrographs of contrast enhanced MRI brain scan showing an infiltrative mass lesion involving the anterior ethmoidal sinuses, sphenoidal sinuses and left orbital apex crossing cribriform plate and dura to infiltrate brain parenchyma (↑).

DISCUSSION

Invasive aspergillosis is a disease caused by filamentous fungi. The most common species is *Aspergillus fumigatus* [2]. *Aspergillus* is a mold with septate hyphae about 2-4 microns in diameter, ubiquitous in the environment and spreads by inhalation of spores [3]. Invasive disseminated form is mainly a disease of immune-compromised host and is often a fatal infection [4]. The condition was

reported mainly from Sudan but also from other areas, including the Indian subcontinent [5]. Central nervous system (CNS) aspergillosis is very rare in immunocompetent patients. The infections mostly occur through hematogenous dissemination from a focus, such as lung infection, or rarely through direct extension from the paranasal sinuses [6].

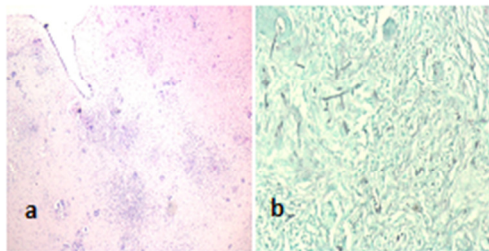


Figure 2. Photomicrographs from transnasal biopsy showing (a) multiple granulomas with multinucleated giant cells (H and E, x10); (b) branching septate fungal hyphae (methenamine silver stain, x40)

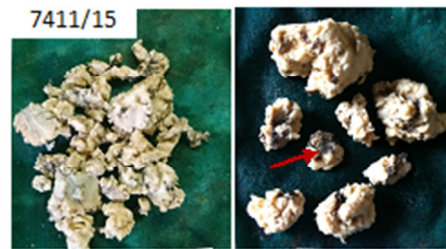


Figure 3. Gross photograph of the brain biopsy showing multiple gray white soft tissue fragments with black areas of necrosis (↑).

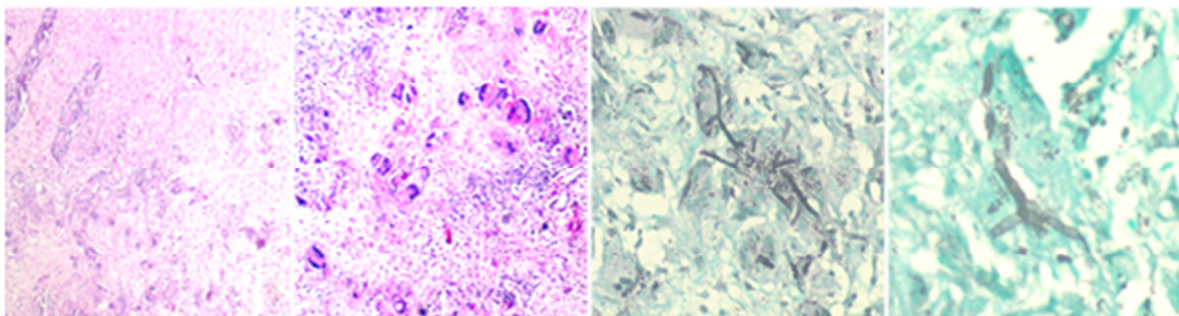


Figure 4: Photomicrographs from brain biopsy show (a) normal brain parenchyma with adjacent chronic granulomatous inflammation (H and E, x10); (b) scattered multinucleated giant cells in granuloma formation with lymphocytic inflammation (H and E, x40); (c) & (d) fungal hyphae show true septations and branching pattern with acute angle, morphologically consistent with aspergillus (methenamine silver, x40).

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In present case patient had invasive aspergillosis with involvement of paranasal sinuses with extension into frontal lobe. No underlying immunodeficiency status was found in the form of diabetes, alcoholism, past respiratory infection and other immunodeficiency status. The definitive diagnosis is made with histological tests.

CONCLUSION

Invasive aspergillosis generally occurs in immunosuppressed patients. It may also rarely occur in

immunocompetent individuals. Histopathology along with ancillary fungal stains had proved the diagnosis of invasive cerebral aspergillosis.

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