Invasive Pulmonary Arpergillosis with Intracranial Involvement

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ABSTRACT

Background: Invasive pulmonary aspergillosis is a rare entity especially with intracranial extension. Patients usually present with nonspecific signs and symptoms and need a high index of suspicion and prompt treatment because of high morbidity and mortality.

Case Description: 45 years old male patient presented with generalized symptoms diagnosed as pulmonary aspergillosis and later he developed neurological symptoms and found to have an intracranial spread of the infection.

Conclusion: Invasive pulmonary aspergillosis with intracranial involvement is a rare entity and needs a high index of suspicion for diagnosis. Also, it carries high morbidity and mortality.

Keywords: Invasive pulmonary aspergillosis; Diabetes mellitus; Hypertension; Hepatitis B

CASE PRESENTATION

A 56 years old male known case of diabetes mellitus, hypertension, and hepatitis B presented with generalized weakness, fever and dry cough. His baseline lab workup was within the normal limit but chest X-ray showed cavitation in the left lobe. CT scan chest with contrast was done which showed cavitating pulmonary infiltrate scattered throughout the lungs most likely representing pulmonary tuberculosis as shown in Figure 1. Bronchial wash sent for workup which showed Aspergillus flavus on fungal culture and fungal hyphae on microscopy (Figure 2).

Antifungal treatment, voriconazole started but over a course of time patient gradually became drowsy and developed seizures for which the MRI brain was ordered and it showed the lobulated area in the right frontal region with surrounding edema mx 4.8 × 4.4 × 3.6 cm it shows restricted diffusion and peripheral post-contrast enhancement. Another abnormal intensity area saw in the left temporal region. Findings are most likely due to tuberculosis or fungal abscess (Figure 3).

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DISCUSSION

Aspergillus spp. are acquired by inhalation of spores and can be life-threatening, especially in an immunocompromised individual [1]. Patients present with usually nonspecific symptoms. They may present with fever, cough, antibiotic therapy failure or hemoptysis [2]. Intra pulmonary Aspergillosis was first described in 1953 [3]. Its incidence has increased due to the use of immunosuppressive agents [4]. Major risk factors are transplantation, steroids, neutropenia and malignancy [1,5]. Histopathological diagnosis, by lung tissue biopsy, remains the 'gold standard' for the diagnosis of Intrapulmonary aspergillosis [6]. The presence of septate, branching hyphae invading the lung tissue and a positive culture for Aspergillus from the same site, is diagnostic of IPA. The chest radiograph shows nonspecific changes. Usual findings include pulmonary cavitations [7,8]. A high-resolution CT scan is useful [9]. CT chest findings include ill-defined nodules (67%), ground-glass appearance (56%), and consolidation (44%) [10].

Treatment is difficult and mortality is high. Is suspicion is high, start therapy as soon as possible. For many years Amphotericin B was the first line of therapy. It is now replaced by voriconazole. Patient receiving voriconazole has a highly favorable response as compared to amphotericin B [11].

Only a few published case reports and short series of invasive intracranial aspergillosis exist in literature. More common in immunocompromised hosts but now new emerging cases shows the involvement of immunocompetent host. Increase survival renders patients susceptible to fungal infection [12].

Invasive intracranial aspergillosis can manifest as meningitis, meningoencephalitis, and intracranial abscess and as a granuloma [13,14]. Granuloma is the most common presentation [15]. Intracranial spread may occur from the hematogenous route [16]. MRI brain with contrast is a diagnostic tool for intracranial lesions [17]. Ring enhancing lesion on contrast MRI is suggestive of an abscess but for definitive diagnosis fungal culture and biopsy should be sent after taking a sample from brain tissue. Load patients with voriconazole preoperatively because it has good penetration through the blood-brain barrier [17-19]. Postoperatively patients should continue on the same drugs for a long period of time. No definitive management protocol has been defined. Postoperative mortality is mainly because of herniation, ischemia and hydrocephalus [1,20].

CONCLUSION

Invasive pulmonary aspergillosis with intracranial involvement is a rare entity and needs a high index of suspicion for diagnosis. Also, it carries high morbidity and mortality.

REFERENCES


