Case report

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Invasive pulmonary aspergillosis in an immunocompetent host

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Abstract

Invasive pulmonary aspergillosis (IPA) is a rare opportunistic mycosis with a usually fatal ending if misdiagnosed or untreated. Environmental exposure to species of the Aspergillus genus is almost never an issue for immunocompetent hosts and no disease will develop from it, however, when a patient's immune system is impaired, the fungus will be able to invade the host's system and the invasive mycosis will ensue. We report a patient with no important past medical history, chronic infections requiring prolonged antibiotic therapy or steroid dependent diseases, that presented to our facility to be treated for chronic sphenoid sinusitis secondary to Aspergillus fumigatus, and was later on found to have IPA.

Key words: Aspergillosis, bronchoscopy, immunity, invasive pulmonary aspergillosis.

Introduction

Invasive pulmonary aspergillosis is a commonly fatal disease, if not diagnosed and treated promptly, that usually occurs in immunocompromised patients. (1) When an immunocompetent host is exposed to Aspergillus, he will usually develop allergic bronchopulmonary aspergillosis (ABPA) or formation of aspergillomas in those with lung cavities. (2) We present a case report of an immunocompetent host who suffered chronic sinusitis due to Aspergillus fumigatus and eventually developed invasive pulmonary aspergillosis (IPA).

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Case presentation

An 80-year-old Hispanic woman with no significant past medical history was admitted to our facility to undergo a surgical sphenoidectomy to manage uncontrollable epistaxis, that had been going on for several years, but never fully addressed by her primary physician. This patient had not been on immunosuppressant drugs and had no history of diabetes. On arrival to our institution she had significant epistaxis that required posterior packing. She underwent a bilateral sphenoidectomy and the surgeon found fungal concretions in both sphenoid cavities, which later revealed Aspergillus fumigatus. On post-operative day (POD) #1 progressive dyspnea presented. The patient was transferred to the intensive care unit where a chest x-ray revealed right lung fissure fluid collection. A follow up computed tomography (CT) reported scattered ground-glass densities in the right lower lobe, likely representing atypical infection (**Figure 1**). An emergency bronchoscopy was performed and revealed black mucosal excrescences in the entire right bronchial tree, compatible with aspergillosis (**Figure 2**). Human immunodeficiency virus serology was negative. Complement levels and total and qualitative immunoglobulins were within normal limits. Voriconazole was started, initially intravenously and then orally. The patient left the hospital after 3 weeks of hospitalization and on follow up 3 months later, she is doing well.

Discussion

Invasive pulmonary aspergillosis (IPA) is an opportunistic fungal infection that requires the clinician to identify it promptly to prevent a fatal outcome. The exposure to Aspergillus alone will not cause the disease. For IPA to occur, some elements are required such as: hypersensitivity, lung cavities or immunocompromise. When this fungus encounters one of these 3 conditions, aspergillosis will develop. However, IPA specifically will require the host to be importantly immunocompromised. (1) Our patient did not have any predisposing factors, only an ongoing chronic sinusitis. The sinus infection with Aspergillus by itself is not a predisposing factor, since this condition is usually benign. Allergic bronchopulmonary aspergillosis (ABPA) and aspergilloma were ruled out by CT scan, as well as the patient's past medical history. The diagnosis of IPA was made considering the clinical presentation, findings in the bronchoscopy and CT scan, past medical history of chronic sphenoid sinusitis due to Aspergillus fumigatus confirmed by pathology. (3)

Conclusion

Strong clinical suspicion, despite the presence of immunocompetency, and medical imaging findings proved to be the cornerstone of the diagnosis of IPA in our patient. Specimen cultures as well as serum markers are useful diagnostic tools, but as this case demonstrated, never stronger than clinical presentation, even in an unusual context.

Figure 1. CT scan showing scattered ground-glass densities

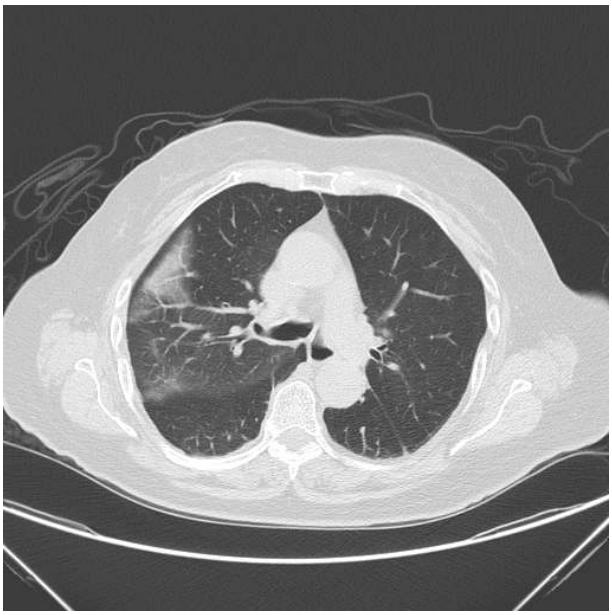
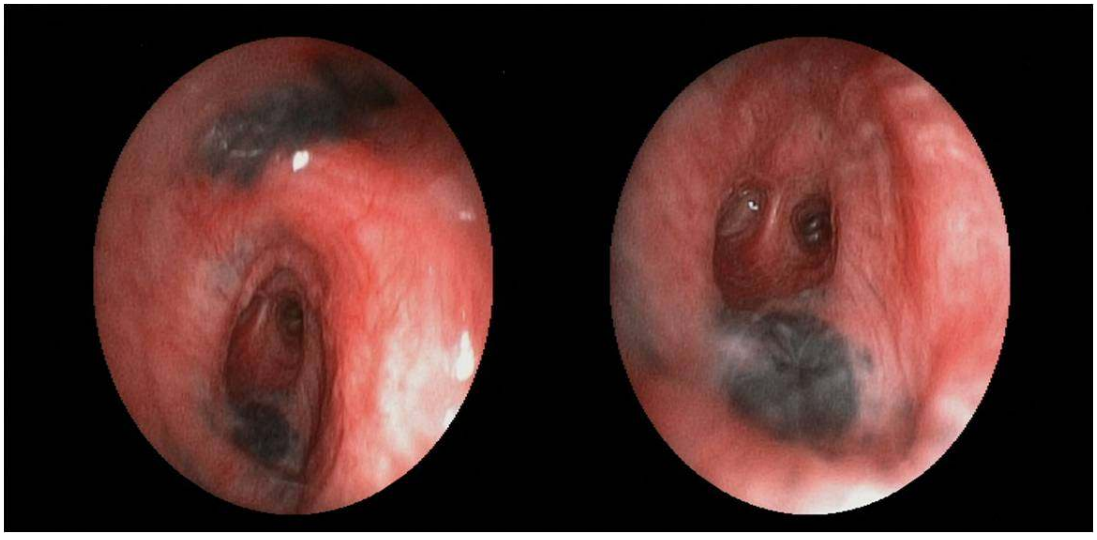


Figure 2. Black mucosal excrescences seen on bronchoscopy



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