Bronchial Aspergillosis: a Case Report

To the editor: *Aspergillus* is a ubiquitous filamentous fungus that can cause infections and illnesses in various ways—through allergy, colonization, or invasion. Illness generally occurs in immunosuppressed patients although it can appear in immunocompetent individuals in any of its forms of presentation: allergic bronchopulmonary aspergillosis, aspergilloma, invasive pulmonary aspergillosis, and chronic necrotizing pulmonary aspergillosis. Other forms of presentation associated with allergic bronchopulmonary aspergillosis are mucus impaction, bronchocentric granulomatosis, eosinophilic pneumonitis, and hypersensitivity pneumonitis. These entities are rare and they partially resemble allergic bronchopulmonary aspergillosis. The case we report is exceptional in that one of these forms of presentation was found in an immunocompetent patient.

The patient was a 51-year-old woman, allergic to vitamin B, with no history of smoking or heavy drinking. She had a history of depression, chronic suppurative otitis, and subclinical hypothyroidism. Her history of respiratory problems included pneumonia of the right lung 22 years earlier, with no sequelae. She was treated in our department for the first time 7 years before the present event for examination of parahilar infiltrates on the right side. She had presented 2 months earlier with a clinical picture of right-sided pleuritic pain, cough, and slight expectoration. The clinical picture remitted on treatment with cefuroxime, although the infiltrates were still present on a radiograph. In the physical examination she showed good general health and no fever or breathing difficulty. Heart and lung sounds were normal and no other system or organ abnormalities were evident. A chest x-ray showed right-sided parahilar infiltrates that were unchanged with respect to the images obtained 2 months previously. An electrocardiogram and thyroid ultrasound scan were normal. Three microscopic examinations of sputum and the aspergillosis precipitin blood test were also normal. The blood count showed 8300 leukocytes/μL (60% segmented, 23% lymphocytes, 7% monocytes, and 8% eosinophils), a hematocrit of 35%, a hemoglobin level of 11 mg/dL, an erythrocyte sedimentation rate of 52, and normal coagulation values. Blood biochemistry values and urine sediment were normal. The levels of immunoglobin (Ig), in mg/dL, were IgE, 146; IgA, 134; IgM, 153, and IgG, 817; with IgG subclasses within normal ranges (but IgG 3 at the lower limit of normal). Serum tests for *Legionella, Mycoplasma pneumoniae, Chlamydia psittaci, Coxiella burnetii,* and hepatitis B and C viruses all gave negative results. Spirometry showed a forced vital capacity of 3700 mL (116%), forced expiratory volume in 1 second of 2600 mL (103%), and a Tiffenau index of 70%. The methacholine provocation test was negative. Bronchoscopy showed inflammation in the right upper lobe, concentric stenosis at the proximal portions of the 3 segments, and very thick white secretions in the anterior segmental bronchus of the same lobe. The rest of the bronchial tree (right and left) was unaffected. *Aspergillus* and eosinophils were isolated in cultures obtained by selective bronchial aspiration in the anterior segment of the right upper lobe. A protected specimen brush from the same area contained 4000 *Aspergillus* colonies. The results of a right upper lobe bronchial biopsy were nonspecific. No Koch bacillus was isolated in the bronchial aspirate or the protected specimen brush. Computed tomography of the thorax showed a triangular area of increased density in the anterior segment of the right upper lobe, partial loss of volume in this segment, and right paratracheal, precarinal and subcarinal lymph nodes larger than 1 cm. Genetic studies were negative.

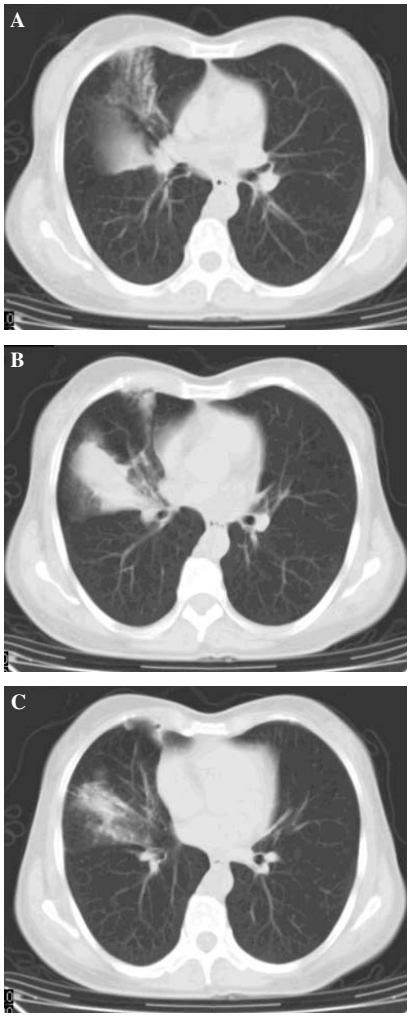

Figure. Cross-sections of segmental atelectasis of the middle lobe revealing bronchiectasis and involvement of the adjacent alveoli.

A diagnosis of allergic bronchopulmonary aspergillosis was initially ruled out given the local and peripheral eosinophilia, the presence of *Aspergillus*, the low IgE level, and the absence of asthma and bronchiectasis. Bronchial aspergillosis was established as the most probable diagnosis, another possibility being bronchocentric granulomatosis. Treatment was initiated with systemic corticosteroids, followed by a year of itraconazole therapy, which was well tolerated and accompanied by radiological and clinical improvement. Computed tomography of the thorax revealed bronchiectasis in the right upper and middle lobes. After the year of itraconazole therapy, the patient had another exacerbation and was treated using the same drug, with identical results. Four years later, at the end of 2001, the patient presented with atelectasis of the middle lobe (Figure) and treatment was initiated using inhaled amphotericin B, itraconazole, and a course of corticosteroid therapy. Clinical and radiological improvement was observed after 4 months of treatment. Since then the patient has been receiving maintenance treatment consisting of inhaled amphotericin B twice a week and itraconazole.

Bronchocentric granulomatosis is a variant of allergic bronchopulmonary aspergillosis characterized by necrotizing granulomas that destroy the bronchioles. *Aspergillus* is isolated in 40% to 50% of the granulomas of patients with this entity, which presents with an inflammatory eosinophilic infiltrate and fibrosis in the lung parenchyma. Patients almost always have a clinical picture of asthma, with persistent cough. Peripheral eosinophilia and a high serum level of IgE are found. A chest x-ray usually shows multiple pulmonary nodules that can be mistaken for tumors. Patients with this clinical picture usually respond satisfactorily to treatment with corticosteroids. The case we report differs from the norm both in the absence of asthma or high IgE level, and in radiologic and pathologic findings.

Mucus impaction may appear in patients without asthma. It is usually accompanied by cough and mucus expectoration, and may evolve towards atelectasis, a progression that sometimes raises mistaken suspicions of malignancy. This is the clinical picture that most resembles the case we report. We decided on a final diagnosis of bronchial aspergillosis, because of its location. There is no established therapeutic regimen for these cases. One possible treatment for exacerbations is inhaled amphotericin B and oral itraconazole, with the option of adding courses of systemic corticosteroids in the early stages. As prophylactic treatment the most reasonable option is probably inhaled amphotericin B in small doses.

M.J. Pinazo Delgado[a] and E. Martín Zapatero[b]

[a]Servicio de Medicina Interna, Althaia Sant Joan de Déu, Manresa, Barcelona, Spain.
[b]Servicio de Neumología. Althaia Sant Joan de Déu. Manresa, Barcelona, Spain.

Galvadà Santpau J, Ausina V. Infección por *Aspergillus*. Medicine 2002;68:3625-30.

Gassiot Nuño C, Pino Alfonso PP, Rodríguez Vázquez JC, Ramos Gómez M, Páez Prats I, Gundián González J. Aspergilosis pulmonar: un nuevo enfoque en la reemergencia. Acta Médica 2000;9:67-72.

Soubani AO, Chandrasekar PH. The clinical spectrum of pulmonary aspergillosis. Chest 2002;121:1998-99.