A Case of Aspergillosis of the Lung

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Aspergillosis of the lung is a very rare disease and is due chiefly to the Aspergillus fumigatus, but sometimes to A. niger, and, even more rarely, to the Aspergillus flavus. This disease is usually confused with pulmonary tuberculosis, and, in fact, sometimes co-exists with it. Because there are on record very few such cases not co-existent with pulmonary tuberculosis, we have thought it desirable to describe our case of aspergillosis of the lung, which for a long time was treated as pulmonary tuberculosis.

L.P., 45 years of age, a civil servant. Between 1941 and 1944 he had mild but frequent hemoptyses which subsided without treatment and which were followed by a light paroxysmal cough without expectoration. In 1945 he noticed general weakness of the body, slight loss of weight, a slight evening rise in temperature, an increase in cough with either a great deal of expectoration of pus and mucus or expectoration of blood, as well as such nervous disturbances as insomnia, numbness of the limbs, and undue fatigue. At this time the diagnosis of pulmonary tuberculosis was made and the patient was offered appropriate treatment.

However, in spite of the clinical and x-ray findings, his sputum was consistently negative for acid-fast bacilli on simple smears and concentrates. The patient remained at rest for many months. But in spite of this general treatment, he failed to improve and on April 15, 1946, he came to us for examination.

During the examination of the patient, we were impressed by the characteristic expectoration containing many small, hard, yellowish or whitish grains of varying sizes, and the sputum being consistently negative for tubercle bacilli. Sputum cultures revealed Aspergillus fumigatus.

The spores of these fungi are usually found spread on the ground, in the dust of dry leaves and in chaff, and reach the lungs by inhalation. These spores are usually not dangerous. They take on a pathogenic character, however, in cases of lowered resistance, such as, during convalescence after serious communicable diseases, and during chronic illnesses such as diabetes, etc. They are occasionally found as secondary invaders in bronchiectasis, chronic bronchitis, and pulmonary tuberculosis. The disease usually appears in those who are occupied in breeding pigeons (in fact, in bird-breeders in general), and in those whose occupation necessitates their coming into contact with the flour of rye.

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Aspergillosis of the lung can be either primary or secondary. The primary form appears as bronchial or bronchopneumonic. Aspergillar bronchitis is manifested at first by a persistent and paroxysmal cough, and is later followed by a great deal of expectoration; it is also sometimes the cause of bronchial asthma. When the fungus is carried through the bronchi and is located in the lung tissue, the disease then takes the bronchopneumonic form and is followed, in addition to the above symptoms, by frequent hemoptyses. The sputum has a characteristic appearance because in it appear a great many whitish or yellowish granules due to necrosis of the lung tissue. Aspergillosis is usually confused with pulmonary tuberculosis because it is located in the upper lobes.

**FIGURE 1:** Infiltrating lesions in the right lung and the left lower lobe due to Aspergillosis.

**FIGURE 2:** The same case after four months treatment showing some resolution of the infiltrations.
and apices. But the clinical picture of aspergillosis of the lung appears much less serious than some forms of pulmonary tuberculosis because in its first stages it usually develops without fever and does not influence the general condition of the patient. However, in its later stages it brings about considerable lowering of the general condition. Differential diagnosis is possible only through the discovery of the pathogenic factor in the sputum.

Pathologically, aspergillosis of the lung causes necrotic areas of the mucosa and of the lung tissue, of a gray or green-gray color, which are surrounded by other cellular elements that are in different stages of the degeneration. Around these areas, the lung shows chronic infiltration, more or less diffuse. The necrotic areas usually communicate with the lumens of the bronchi, and necrotic tissue is expelled by cough and cavities are formed which differ from gangrene only in the absence of foetid breath. This chronic inflammation of the lungs can spread out and contribute to the hardening of the whole of one or both lungs.

In certain cases, in spite of the presence of small cavities, there are no symptoms. Usually, however, there appear such symptoms (similar to those of pulmonary tuberculosis of chronic bronchitis) as cough with pus and mucus, and, more usually, bloody expectoration with, sometimes, the expulsion of the necrotic lung tissue as well.

The disease can sometimes, but only very rarely, heal spontaneously, leaving behind a general lung cirrhosis.

In our case, we applied the treatment of sulfathiazole, giving by mouth four grams daily in three-hourly doses, and adding some sodium bicarbonate. We continued this treatment for four months, except for some slight interruptions, and gave a total of 420 grams of sulfathiazole which the patient tolerated well. Simultaneously, the patient was taking small quantities of potassium iodide which had to be abandoned after the first month because he was unable to tolerate this. After the second month the expectoration decreased considerably and the sputum changed steadily into mucus, and all the necrotic elements and blood disappeared. Sputum cultures have been negative, and the patient has been in an excellent condition for more than a year. He has returned to work and no longer has any complaints.

SUMMARY

A case of pulmonary aspergillosis treated as pulmonary tuberculosis for many years has been discussed. The character of the sputum and the persistently negative examination for tubercle bacilli led to repeated cultures of the sputum with the aspergillus
fumigatus finally being recovered. Treatment with sulfathiazole and potassium iodide has produced complete cure within 5 months.

RESUMEN

Se discute un caso de aspergilosis pulmonar que fue tratado como tuberculosis pulmonar por muchos años. El carácter del esputo y el hecho de que la busca de bacilos tuberculosos siempre resultó negativa, necesitaron que se hicieran repetidos cultivos del esputo, hasta que al fin se encontró el aspergillus fumigatus. El tratamiento con el sulfatiazol y el yoduro de potasio produjo una curación completa en menos de cinco meses.