Allergic Bronchopulmonary Aspergillosis Associated with Smoking Moldy Marihuana*

Roberto Llamas, M.D., F.C.C.P.; D. Robert Hart, M.B., B.S.; and Neil S. Schneider, M.D., F.C.C.P.

A 27-year-old man who habitually smoked marihuana developed clinical, laboratory, and radiologic findings consistent with allergic bronchopulmonary aspergillosis. Culture of the marihuana obtained from the patient’s source yielded heavy mixed growths of Aspergillus. Treatment with corticosteroids was effective.

The syndrome of asthma with recurrent fever, eosinophilia of the peripheral blood, pulmonary infiltrates, and bronchial mucous plugs containing Aspergillus fumigatus was first described in 1952 by Hinson and associates and was classified as “allergic bronchopulmonary aspergillosis,” hence distinguishing it from “saprophytic” and “invasive” types of aspergillosis. In the British Isles, this is considered by some to be the most frequent cause of pulmonary eosinophilia with asthma. The relatively small series of case reports from North America may reflect a failure of recognition, rather than a true difference in prevalence. We report a case of this syndrome associated with the use of moldy marihuana.

CASE REPORT

A 27-year-old white man was admitted to the hospital, complaining of fever with night sweats, wheezing, and a productive cough for ten days. He had demonstrated atopy since adolescence and had suffered infrequent asthmatic attacks with bronchitis since the age of 20 years. He had smoked marihuana regularly for about six years. During the month before admission, a severe attack of bronchospasm had been complicated by moderate eosinophilia of the peripheral blood and sparse bronchopulmonary infiltrates, but the episode resolved quickly with administration of a single injection of 40 mg of methylprednisolone sodium succinate (Solu-Medrol).

The findings from physical examination were unremarkable, except for a rectal temperature of 38.7°C (101.7°F) and occasional rhonchi in both lungs. The leukocyte count was 11,400/cu mm, with 21 percent eosinophils and the erythrocyte sedimentation rate was 18 mm/hr.

On admission a chest x-ray film (Fig 1) showed patchy bronchopulmonary infiltrates located mainly in the upper lobes. Fiberoptic bronchoscopic examination revealed large, firm, brownish-green mucous plugs extruding from the acutely inflamed openings of many major bronchi. Samples of sputum and bronchial washings contained similar plugs, which were found to be comprised of fungal mycelia, Charcot-Leyden crystals, and eosinophils. Abundant colonies of A fumigatus were cultured from all of these specimens. Serum obtained during the acute phase of the patient’s illness produced three precipitin bands for A fumigatus and one band for A niger by immunodiffusion and the level of IgE in the serum was elevated at 1,150 μg/ml (normal adult levels, below 300 μg/ml). Intradermal testing with 50 protein nitrogen units of A fumigatus extract (Hollister-Stier Laboratories) produced an immediate wheal-and-flare reaction 4 cm in diameter and a 24-hour delayed reaction of induration that was 6 cm in diameter. Mycobacterium tuberculosis was not found in specimens of sputum, and a cutaneous test with intermediate-strength purified protein derivative of tuberculin was negative. No parasites were found in the patient’s stools.

Samples of marihuana obtained from the patient’s “stock” jar yielded heavy growths of A fumigatus, A niger, and A flavus. Dramatic symptomatic and radiographic improvement occurred soon after restarting therapy with steroids.

DISCUSSION

Aspergillus is commonly present in decaying vegetation and is geographically widespread in air and soil, with a seasonal increase during the winter months. Although it is an infrequent cause of disease in man, A fumigatus is the usual offender of this genus. Atopy, with or without asthma, often antedates allergic bronchopulmonary aspergillosis and may offer a bronchial environment favorable to growth of Aspergillus. It is likely that marihuana becomes moldy because of conditions of storage during illegal transshipment or during the process of “aging,” whereby marihuana is buried in the soil for a time.

Chusid et al reported a case of chronic pulmonary granulomatous disease due to A fumigatus. In this instance the organism was also found in marihuana being smoked by their patient, as well as in two out of ten samples of the drug which they obtained from the US Department of Justice’s Drug Enforcement Agency in Washington, DC.

Folklore has promoted marihuana as a potent remedy

*From the Pulmonary Division, Cardiopulmonary Laboratory, Miami Heart Institute, Miami Beach, Fla. Reprint requests: Dr. Llamas, Miami Heart Institute, 4701 North Meridian, Miami Beach 33140

Figure 1. Posteroanterior x-ray film of chest, showing bilateral bronchopulmonary infiltrates predominant in upper lobes.

CHEST, 73: 6, JUNE, 1978
for asthma, but usually it was taken as a brew when used for that purpose. Investigations have shown bronchodilatation to occur in normal volunteers and in experimentally induced asthma following inhalation of smoke from marijuana, thus establishing a scientific foundation for these ancient beliefs; however, heavy prolonged smoking of the drug appears to cause mild but significant obstruction of the small airways and, in some instances, chronic bronchitis. The use of marijuana may be particularly hazardous for the atopic asthmatic subject, as this case report suggests.

REFERENCES


Cerebral Dye Embolus

A Complication of Selective Bronchography following Transbronchial Biopsy

Frederick A. Oldenburg, Jr., M.D.,** and Michael T. Newhouse, M.D., M.Sc.†

Cerebral embolization of an aqueous solution of propyliodone (Dionosil) occurred during selective bronchographic studies following a fiberoptic bronchoscopic procedure with transbronchial biopsy in a patient undergoing investigation of a pulmonary lesion. The embolization resulted in a grand mal seizure and transient neurologic deficits. This potential complication has not been previously reported. We suggest that selective bronchographic studies be avoided when the transbronchial biopsy is associated with endobronchial bleeding.

The value of a fiberoptic bronchoscopic procedure with transbronchial biopsy in the diagnosis of various pulmonary diseases has been recently reviewed.

Bronchography is also a well recognized technique for identifying endobronchial lesions and abnormal bronchial anatomic findings. Bronchoscopy with simultaneous selective bronchography is a less frequently used but accepted technique of examining more peripheral lesions and unusual bronchial anatomic findings. This report describes a previously unreported complication of transbronchial biopsy followed by selective bronchographic studies.

CASE REPORT

An asymptomatic 72-year-old man was referred to the respiratory service for evaluation of a right lower posterior segmental mass seen on a routine chest x-ray film. To establish a diagnosis, the patient underwent fiberoptic bronchoscopic examination with fluoroscopic control. No endobronchial lesions were visualized. Bronchial specimens for biopsy were obtained under direct fluoroscopic control. Following the third biopsy, there was a moderate amount of hemorrhage, which cleared following the endobronchial instillation of 20 units of vasopressin (Pitressin).

A selective bronchogram was then obtained because the possibility of an intralobar sequestration had been raised. A small polyurethane catheter was introduced through the bronchoscope and was directed into the posterior basal segment of the right lower lobe. Approximately 4.0 ml of an aqueous solution of propyliodone (Dionosil) was injected. The contrast material demonstrated an irregular bronchus, which appeared to be oriented in an unusual direction. The dye tended to pool; however, it was noted that some of the contrast material was streaming medially in a pulsatile fashion towards the left atrium and then via the left ventricle into the systemic circulation. The injection was immediately terminated, but the patient had a generalized tonic-clonic seizure and became temporarily unresponsive. His vital signs remained unchanged. The patient was given therapy with steroids to reduce cerebral edema and was transferred to the intensive care unit.

Within five minutes the patient was alert. Neurologic examination revealed no focal neurologic deficits, except for his mental status. The patient was oriented only to person and was able to answer only simple questions. X-ray films of the skull revealed no visible cerebral accumulation of contrast material. Intravenous administration of dexamethasone (Decadron, 6 mg every six hours) was continued. Over the next 24 hours, there were shifts in the patient's mental status from total obtundation to almost normal alertness, with a second grand mal seizure occurring four hours after the procedure.

Three days after the bronchoscopic procedure, the patient still complained of headache and minor diplopia, but he was alert and oriented, and full testing of mental status revealed no abnormalities. By the following morning, these symptoms had cleared, and the patient's visual fields were normal, although he noted a burning sensation of his lips and tongue, which lasted several weeks.

Bronchoscopic examination failed to demonstrate abnormal...