Diagnostic Challenge
A Georgian with Pulmonary Cavitary Disease

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Case History

A 56-year-old white man was admitted to his local hospital in Georgia because of vague chest discomfort, cough productive of mucoid expectoration, a ten-pound weight loss, and malaise of two months duration. He denied night sweats, hemoptysis, or exposure to tuberculosis. He had recently taken a trip to Arizona. Physical examination was unremarkable. Hemoglobin was 9.7gm%; hematocrit 32%, total WBC count 6200/cu mm, with 52% neutrophils, 35% lymphocytes, 5% monocytes, and 3% eosinophils. A PPD skin test was negative on two occasions. Chest roentgenograms showed a 3.6 by 2.5cm, thin-walled cavity in the right upper lobe. The patient underwent fiberoptic bronchoscopy. Bronchial brushings and transbronchial biopsies were obtained. Stains for acid-fast bacilli were negative. A KOH preparation of post bronchoscopic sputum revealed no fungi. Cytology was negative. Histological examination of the transbronchial biopsy specimens revealed granulomatous inflammation with caseation necrosis.

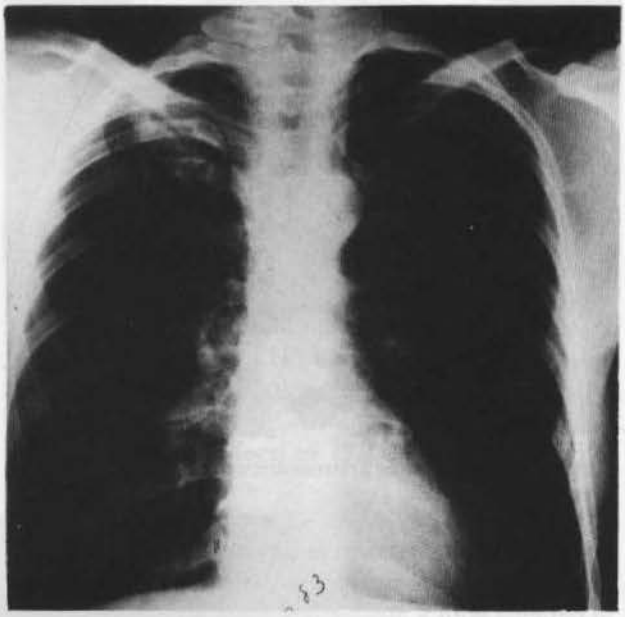

Figure 1: PA Chest roentgenogram showing right upper lobe cavity.

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Cavitary Coccidioidomycosis

The diagnosis was confirmed by growth of Coccidioides immitis on fungus culture of the bronchial brushings.

Coccidioidomycosis is probably the most infectious of all systemic fungal diseases. It is normally acquired by inhalation of spores in certain endemic areas including the southwestern United States (California, Nevada, Arizona, Utah, New Mexico, and Texas), adjacent parts of Mexico, and Central South America. These areas correspond identically with a climatic zone known as the Lower Sonoran Life Zone which is characterized by high mean January (more than 35 °F) and July (more than 77 °F) temperature, and an annual rainfall of five inches to 20 inches. Three factors should alert the physician that coccidioidomycosis is a diagnostic possibility in patients in non-endemic areas.

First: Past residence in or travel through an endemic area is probably the most common cause of coccidioidomycosis in non-endemic areas. Since C. immitis is highly contagious and is usually acquired by inhalation of spores, even a short stay or a drive through endemic areas may be enough to cause infection. This was characteristically demonstrated by increased incidence of the disease among military personnel sent to endemic areas for training during World War II.[1] The increasing popularity of the southwestern sunbelt states as resort and vacation sites will probably lead to an increase in the incidence of coccidioidomycosis in other parts of the country.

Second: Contaminated fomites and other products imported from the endemic area may infect handlers in the non-endemic areas. A number of cases have been reported in which C. immitis was apparently acquired from imported contaminated fomites. In one reported case, a black male native of Georgia, employed in a waste cotton processing plant, developed primary pulmonary coccidioidomycosis after unloading waste cotton imported from endemic areas in California.[2]

Third: Laboratories where C. immitis is handled, serve as permanent focus of infection in the non-endemic areas. Several cases of coccidioidomycosis have been reported among medical personnel working in laboratories where C. immitis is handled.[3]

This report illustrates the importance of considering coccidioidomycoses in non-endemic areas. Pulmonary cavitation only occurs in about 1 to 4% of actual C. immitis infections. Hence, the number of cases of C. immitis infections is probably underestimated in non-endemic areas. A past history of residence in or travel through an endemic area, and a careful occupational history, should be diligently sought in all patients with unusual pulmonary infections, in whom the diagnosis is not readily established.

More than 95 percent of patients with clinical evidence of pulmonary coccidioidomycosis recover completely in 1-3 weeks. In the remaining patients, cavity formation is the commonest manifestation. Up to one-half of these cavities are thin walled and close spontaneously. Persisting cavities are considered benign unless sputum remains positive for C. immitis and surgery is indicated only if local complications develop. Hemoptysis occurs commonly in patients with cavities and if massive, excision of the cavity may be needed. Cavities may also be excised if they enlarge and compress adjacent lung tissue. Occasionally, cavities may rupture into the pleural space resulting in empyema, recurrent pneumothorax or bronchopleural fistula.

References

1. Smith CE: Coccidioidomycosis, in Preventive medicine in World War II, Vol. 4. Communicable diseases transmitted chiefly through respiratory and alimentary tracts. SB Hays and JB Coates (Eds) Washington D.C.: Office of the Surgeon General, Department of the Army, 1958, pp 285-316.
2. Albert BL, Sellers TF: Coccidioidomycosis from fomites. Arch Intern Med 112-253-261, 1963.
3. Johnson JE, Perry JE, Fekety FR, et al: Laboratory acquired Coccidioidomycosis. Reports of 210 cases. Ann Intern Med 60:941-956, 1964.