Spontaneous Pneumothorax with Unusual Manifestations*

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This 15-year-old Mexican-American girl had a two-year history of recurrent bronchitis treated intermittently with antibiotics. She denied fever, chills, skin rash, or chest pain. Shortly before the admission chest roentgenogram (Fig 1) she had an episode of hemoptysis. Skin tests for tuberculosis and fungi were negative. She had slight leukocytosis with 13 percent eosinophilia.

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Diagnosis: Spontaneous Rupture of a Coccidioidomycosis Cavity Into the Pleural Space

Figure 1 reveals left hydropneumothorax. A cavity can be seen in the upper portion of the markedly collapsed lung. Radiographs two years earlier had demonstrated a thin-walled cavity, 2.2 cm in diameter, in the left upper lobe. She was then lost to follow-up care. A radiograph obtained eight days before admission is shown in Figure 2. The cavity, which is subpleural, now measures 5 cm in diameter. The lesion had ruptured into the pleura while arrangements for elective surgery were being made. The coccidioidomycosis complement fixation test was positive at 1:16 dilution at time of surgery. At operation, the pleural cavity contained 300 ml of purulent material. The lung was completely collapsed and its entire pleural surface was covered by a thick purulent membrane. On cut section, a 3 cm cavity was found adjacent to the pleural surface in the left upper lobe. A smaller cavity measuring less than 1 cm in diameter was noted nearby. Both were lined by a smooth red glistening membrane. Left upper lobectomy was performed.

Microscopic sections disclosed extensive fibrosis, scattered granulomas, and spherules of Coccidioides immitis, which contained endospores. The cavity was necrotic in many areas. Fungus stain of its contents showed a mass of septated mycelia.

The patient did well in the six-month interval following lobectomy. At that time, the complement fixation test was positive at 1:8 dilution and the coccidioidomycosis skin test has remained negative. There was no evidence of residual disease.

Spontaneous pneumothorax may be idiopathic, due to underlying diffuse parenchymal disease, or result from a ruptured cyst, nodule, or cavity. Any cavitated lesion, active or quiescent, that borders on the pleura may rupture into the pleural space. One must study the parenchyma before and after re-expansion of the lung: if a cavity is noted, an effort to determine its etiology must be made. Tuberculosis, lung abscess, and cavitated neoplasm are common causes. If the cavity is thin-walled and subpleural, as in coccidioidomycosis, it is more likely to rupture into the pleural space.

Pulmonary coccidioidomycosis presents a variety of roentgen patterns. These include in order of frequency: 1) bronchopneumonia, 2) transient infiltrates, 3) lymphadenopathy, 4) pleural effusion, 5) single or multiple solid or cavitary nodules.1,2 Cavitation occurs in approximately 2-15 percent of hospitalized cases of coccidioidomycosis.1,3 Ninety percent of the cavitary lesions are solitary and most are 2-3 cm in diameter with a range of 1-14 cm.4 Thick- and thin-walled cavities are about equal in frequency. Upper lobe involvement occurs in 70 percent, typically in a subpleural location.5 In two large series the incidence of spontaneous rupture into the pleura was 2 and 2.6 percent.5,4 Hemoptysis occurs in about half of the residual cavities of coccidioidomycosis. The remainder of the patients are asymptomatic.

Although coccidioidomycosis is endemic in the southwestern United States, increasing travel to or through this region, particularly in military installations, exposes people from all over the United States. Thus, patients with pulmonary manifestations of this disease may appear in any part of the country. The disease can be contracted even during brief exposure to an endemic area.

REFERENCES