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Primary Pulmonary Botryomycosis*

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Botryomycosis is a rare, "actinomycetoid" tissue response to infection with pyogenic bacteria. Involvement of skin, muscle, bone, and viscera has been reported. This is a report of primary pulmonary botryomycosis presenting with persistent hemoptysis and a cavitary lesion of the left upper lobe.

Botryomycotic lesions have been reported following infection with a variety of pyogenic bacteria. The peculiar tissue reaction, in which the micro-organisms are surrounded by a peripheral layer of hyaline material, is usually associated with Actinomyces israelii, but occasionally occurs following infection with Nocardia, Mycobacteria, fungi, and schistosome ova.

The pathogenesis of botryomycosis is not known. It is generally thought that a delicate balance is struck between bacterium and host, perhaps related to: 1) low infecting dose of the organism, 2) decreased virulence of the infecting organism, or 3) modification of the inflammatory response by inadequate antibiotic therapy. Bacterial cytoplasmic antigens, closely resembling those of Actinomyces,1 may be responsible for the morphologic similarity to actinomycotic lesions.

Clinically, botryomycosis may be subdivided into cutaneous and visceral types. Twenty cases of the rarer visceral form have been reported. Lung involvement may be primary or secondary. In three cases with dissemi-

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inated visceral involvement, botryomycotic lesions were found in the lungs.2-3 One case of primary hepatic botryomycosis involved the lungs by direct extension across the diaphragm and metastatic spread.4 Eight cases of primary pulmonary botryomycosis, with occasional secondary involvement of pleurae, ribs, vertebrae, and hilar lymph nodes, have been previously reported.5-6 This case presents several interesting aspects of primary pulmonary botryomycosis.

Case Report

A 53-year-old woman, with adult-onset diabetes mellitus, was admitted to the University Hospital, Augusta, Georgia, in February, 1968, for incision and drainage of an abscess of the right breast. Following surgery, she was treated with ampicillin, 250 mg qid for two weeks. A chest roentgenogram during this hospitalization showed minimal left upper lobe fibrosis. PPD-S skin test and sputum cultures for tubercle bacilli were negative.

She was readmitted in October, 1969, with a one-year history of repeated small hemoptyses. In the six days immediately preceding admission, she had more frequent episodes of hemoptysis. The patient was afebrile, and physical examination was unremarkable. Chest roentgenograms showed a cavitary lesion of the left upper lobe (Fig. 1). White blood cell count was 7800 with 64 percent neutrophils, 22 percent lymphocytes, 10 percent monocytes and 3 percent eosinophils. Sputum cultures were negative for tubercle bacilli and fungi. Repeated sputum cultures for bacteria grew Klebsiella on one occasion. PPD-S, PPD-second strength, coccidiodin, and blastomyces skin tests were negative. A histoplasmin skin test was positive (18 mm induration). Histoplasmin complement fixation studies were nonreactive. Bronchoscopy showed only edema of the orifice of the left upper lobe bronchus. Cytologic studies and cultures of bronchial washings were negative. Exploratory thoracotomy was recommended, but the patient refused.

She continued to have occasional hemoptyses. In February, 1970, she was admitted to the hospital for the third time, following several hours of repeated hemoptysis. Three days later, left upper lobectomy was performed.

FIGURE 1. Chest roentgenogram showing infiltration, with cavitation, involving the left upper lobe.
Consolidation of the esophagus, composed of diabetes mellitus, presented with pleuritic pain and received in hospital from a recurrent fever in the upper lobes, and is usually confined to a single lobe. It is especially likely to complicate pre-existing pulmonary lesions, and may occur following inadequate antibiotic therapy. Because of the clinical and morphologic similarities, botryomycosis may be mistakenly diagnosed as actinomycosis. Careful pathologic study is necessary to distinguish the two.

DISCUSSION

Nine cases of primary pulmonary botryomycosis, including the present case, have been reported. Seven of these cases were found in conjunction with cystic fibrosis, one with localized pulmonary fibrosis and diabetes mellitus, and one with no apparent concomitant disease. Eight of the patients had received a recent course of antibiotic therapy. The left upper lobe was involved in three cases, right upper lobe in two, left lower lobe in one, and right lower lobe in one. Two cases presented with diffuse lung involvement, one of the right lung, the other bilateral. Two patients developed draining sinuses at the incisional site following thoracotomy. Botryomycotic granules were recovered from the pus in one case, and from the sinus wall in the other.

Clinical manifestations are nonspecific, and often mild. Symptoms in the seven cases complicating cystic fibrosis were varied, and generally were not distinguishable from those of the underlying disease. Our patient presented with recurrent hemoptysis, whereas fever and pleuritic chest pain were prominent findings in the remaining case. There is no distinctive roentgenographic pattern. Primary pulmonary botryomycosis may present as a discrete mass, cavitory lesion, area of consolidation, or diffuse infiltrative process. The diagnosis was established in each case by histologic and bacteriologic examination of a tissue specimen.

Despite its rarity, pulmonary botryomycosis should be considered in the differential diagnosis of obscure pulmonary lesions. The following factors should be taken into account. Primary pulmonary botryomycosis occurs more commonly in the upper lobes, and is usually confined to a single lobe. It is especially likely to complicate pre-existing pulmonary lesions, and may occur following inadequate antibiotic therapy. Because of the clinical and morphologic similarities, botryomycosis may be mistakenly diagnosed as actinomycosis. Careful pathologic study is necessary to distinguish the two.

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Esophageal Obstruction Secondary to Mediastinal Metastasis from Breast Carcinoma

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Metastatic breast carcinoma surrounding the esophagus is rare. Forty-six cases have been reported. Dysphagia is the major symptom. The typical x-ray appearance is extrinsic obstruction of a short segment of esophagus. A patient is presented with total esophageal obstruction which extended from the thoracic outlet to the inferior pulmonary ligament. Problems were encountered in diagnosis and management. Radiation appears to be the treatment of choice for metastatic breast carcinoma which obstructs the esophagus.

Although breast carcinoma may disseminate to any organ, metastasis to the esophagus is unusual. The case history of a patient with complete esophageal obstruction due to metastatic breast carcinoma is recorded. The esophagus was encased in fibrous tissue from the

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