Multiple Pulmonary Nodules with Cavitation and Fever in a 48-Year-Old Man*

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A 48-year-old man was admitted for evaluation of general malaise and a nonproductive cough of seven days’ duration. He smoked 20 cigarettes a day and consumed 120 g of alcohol per day. His medical history was unremarkable.

On examination, his temperature was 38.5°C, and his blood pressure was 120/80 mm Hg. There was a systolic murmur in the apex. The white blood cell count was 12.0 x 10^9/cu mm, and the erythrocyte sedimentation rate was 2 mm/h. The electrocardiogram (ECG) was normal.

A chest x-ray film revealed three nodules in the right hemithorax and two in the left hemithorax, with diameters of 1.5 to 3 cm (Fig 1). Linear tomography showed cavitation in two of them. An otolaryngologic examination and a paranasal sinus x-ray study were normal. Bacterial and mycobacterial cultures were negative, as were serologic and immunologic study. The echocardiogram showed no signs of endocarditis.

Fiberoptic bronchoscopy was carried out, and no endobronchial lesions were found. The findings from BAS cytologic and bacteriological studies were normal. Abdominal ultrasound examination and computed tomography (CT), barium examination of the upper gastrointestinal tract, barium enema, and bone scintigraphy were also carried out, with no abnormal findings.

The patient was questioned again, and he remembered that one month before admission he had fallen down the stairs and had chest pain for two days. He did not consult a physician for this.

Fifteen days after admission the patient was still feverish, and a purulent fetid sputum appeared. Consecutive blood tests revealed a white blood cell count of 24.0 x 10^9/cu mm with one metamyelocyte, seven band cells, 80 polymorphonuclear leukocytes, ten lymphocytes, and two monocytes; the hemoglobin level was 10.5 g/dl, and the erythrocyte sedimentation rate was 108 mm/h. A chest x-ray film demonstrated that the nodules were increasing in size, with cavitation and air-fluid levels in all of them (Fig 2). A diagnostic procedure was performed.

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Diagnosis: Infected secondary traumatic pulmonary hematomas

We obtained a CT scan of the chest and performed a fine-needle aspiration biopsy, obtaining a large amount of foul-smelling pus. Cultures were positive for Streptococcus constellatus; malignant cells were not found. Intravenous antibiotic therapy with clindamycin and tobramycin was administered for three weeks; after this it was continued orally on an antibiogram basis for another six weeks. The patient's condition improved dramatically, and the fever disappeared on the seventh day of treatment. The laboratory test results became entirely normal, and a gradual regression of the nodules was observed. The patient was discharged in an asymptomatic state. Outpatient follow-up was continued; 18 months later he remains asymptomatic, and the chest roentgenogram shows only some residual lesions (Fig. 2).

Our patient probably had bilateral pulmonary nodules that underwent secondary infection. The negative results of all the tests performed, the good response to treatment, and the satisfactory evolution suggest that it was a case of superinfected traumatic pulmonary hematomas. It was very important to rule out other frequent causes of pulmonary cavities, such as tuberculosis, malignant growths, septic metastasis, and Wegener's disease.1,4

Pulmonary traumatic hematoma and pseudocyst are well documented in the literature.5-7 They commonly occur in young patients after major chest trauma. Nevertheless, they have also been reported after minor blows,8,9 as in the case of our patient. Pulmonary hematoma is defined as a hemorrhagic collection within a newly formed cavity in the lung parenchyma; a pseudocyst (pneumatocele), as an air cavity lesion that may contain some blood.8,10

Fagan and Swischuk1,2 make a distinction between a pulmonary lung cyst and a cavitary hematoma; the former has an earlier radiographic appearance (less than 48 h) and a thinner wall. However, according to Kato et al.10 pseudocysts and hematomas are related lesions, and the formation of one of them will depend on their airway communication. They are characteristically unstable lesions as far as size, shape, contents, and nature of the wall are concerned. They usually resolve in a few weeks.8,10 If this does not occur or if there is further growth, it is mandatory to look for other causes, particularly for neoplasms.

If fever and purulent sputum appear, a superinfection possibly related to contamination through the airways must be kept in mind. To our knowledge, superinfection has been documented beyond doubt in two cases; in both cases thoracotomy was performed in order to obtain the diagnosis.3,4 In our case, the CT scan with fine-needle aspiration biopsy allowed a rapid diagnosis, and we could establish effective antibiotic treatment, which obviated thoracotomy.

We believe that this case demonstrates the importance of anamnesis in radiologic differential diagnosis of this unusual cause of nodules.

REFERENCES
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