## RADIOLOGY ROUNDS

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*Department Editor*

# A 74-year-old woman with stroke and a history of aspiration

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This patient is a 74-year-old woman who has recently suffered a stroke and acute respiratory distress. She has aspirated several times in the past. Her management has been complicated by diabetes. She was treated and stabilized during her most recent hospitalization and discharged with instructions for home care.

She was brought back to the hospital with recurrent fever and the possibility of another aspiration. Posteroanterior (PA) (Figure 1) and lateral (Figure 2, page 22) chest radiographs were ordered in the emergency department.

### Radiographic findings

The PA view displays rounded, hunched-up shoulders, which reflect the laxity of weakened shoulder muscles (trapezius, serratus anterior, and levator scapulae). Also apparent are hazy densities within both lungs and a cystic cavity of the superior segment of the left lower lung. The increased densities, as well as a calcified granuloma, reflect old inflammatory lung disease.

### Diagnosis

The differential diagnosis includes lung abscess caused by aspi-

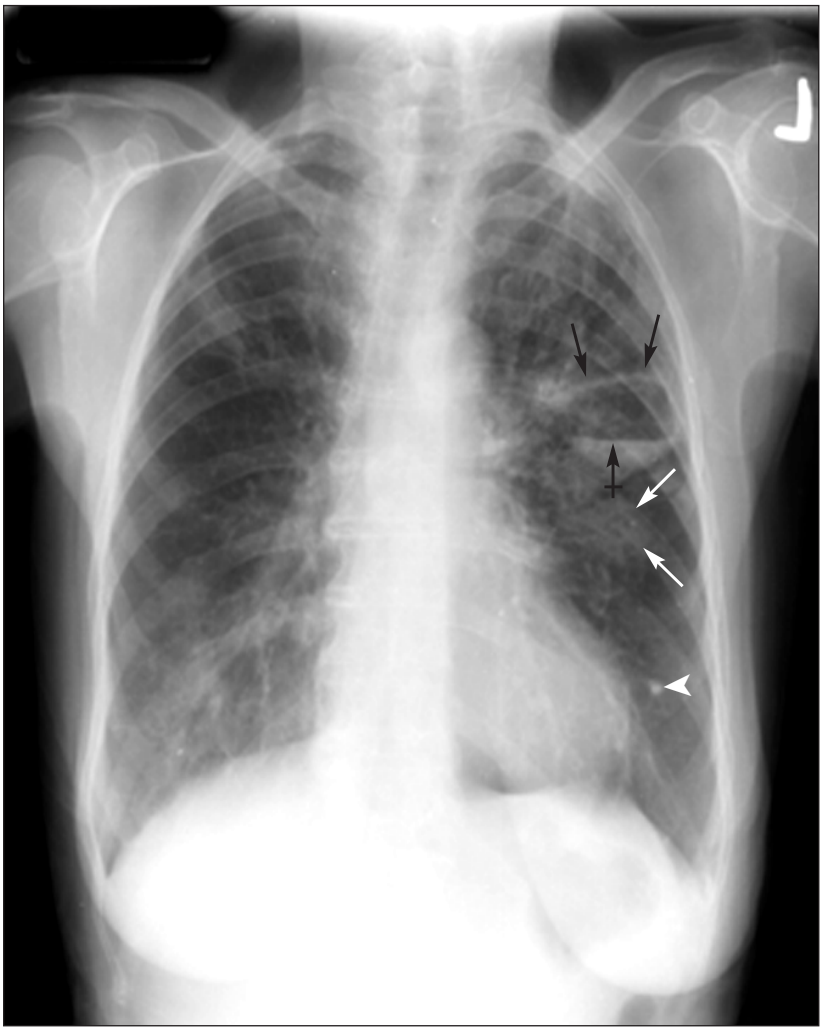

**Figure 1** A prominent finding in this posteroanterior (PA) chest radiograph is a cyst in the superior segment of the left lower lobe (black arrows). The bar arrow designates the air-fluid level within the cyst. Such cysts are frequently caused by aspiration pneumonia. The calcified granulomas (arrowhead and two white arrows) are evidence of old inflammatory disease, as are the densities of fibrosis throughout both lungs. The rounded, hunched shoulders reflect the laxity of the patient's weakened shoulder muscles. Note: This orientation is correct. The reversed L is a technician error.

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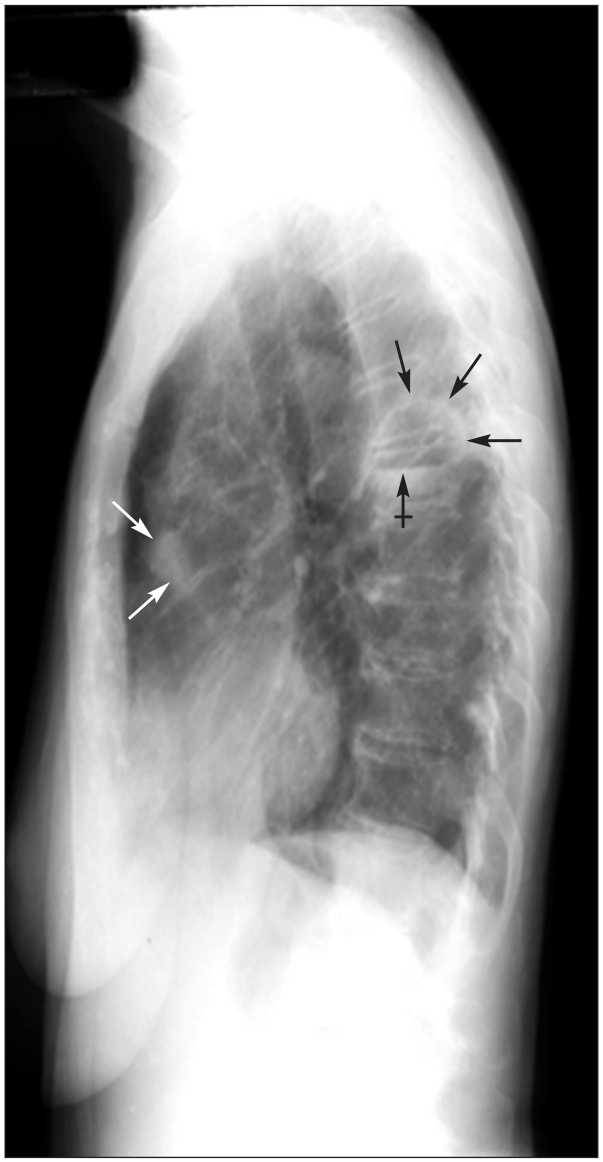

**Figure 2** This lateral chest radiograph displays the posterior position of the cyst (three black arrows), which is typical of a lung abscess caused by aspirated material in a recumbent patient. The bar arrow points to the air-fluid level in the cyst. The two white arrows indicate the retrosternal granuloma.

ration pneumonia, cavitating bronchogenic carcinoma, bronchiectasis, empyema, and tuberculosis. Mucormycosis is also a consideration because of the patient's diabetes.

The radiographic finding of a cystic cavity filled with fluid and air strongly suggests lung abscess, with the cavity being the remnant of a ruptured abscess. The position of the cavity suggests aspiration as the cause since the most common sites are those dependent in the supine position—the superior segment of a lower lobe and the posterior segment of an upper lobe.

This patient was diagnosed with a left lower lobe abscess in the superior segment secondary to aspiration pneumonia. Culture of a bronchoscopic sputum specimen identified *Proteus mirabilis* and *Escherichia coli*.

## Discussion

Aspiration pneumonia is becoming increasingly common in hospitalized elderly patients. Associated conditions include reduced consciousness (stroke, alcoholism, general anesthesia), reflux-causing gastrointestinal disease, periodontal disease, and intubation.

Aspiration pneumonia is a frequent cause of lung abscess. The responsible organisms are anaerobes in about 90% of cases, and the infection is usually polymicrobial.[1] Radiographic features of aspiration pneumonia range from localized segmental areas of patchy bilateral opacities to widespread unilateral disease. Cavitation or abscesses form in 20%-60% of patients.[1] The clinical course is often indolent, and typical physical findings include cough, shortness of breath, chills, fever, night sweats, weight loss, pleuritic chest pain, and purulent sputum.[2] Symptoms may last for several weeks.

The abscess typically ruptures into a bronchus, spilling out the contents, and leaving a fluid- and air-filled cavity apparent on chest radiographs. Sputum evaluation and repeated clinical evaluation can usually establish the diagnosis.

Antibiotic treatment regimens covering the causative organisms should continue until radiographs are clear or show only a small scar. ■

### REFERENCES

1. Gharib AM, Stern EJ. Radiology of pneumonia. Med Clin North Am 2001;85:1461-1491.
2. Levison ME. Pneumonia, including necrotizing pulmonary infections (lung abscess). In: Fauci AS, Braunwald E, Isselbacher KJ, et al, eds. Harrison's Principles of Internal Medicine. 14th ed. New York, NY: McGraw-Hill; 1998:1437-1445.