A 30-year-old black man was admitted to the hospital with a six-month history of fever, 30 pound weight loss, and productive cough with occasional hemoptysis. A history of prior intravenous drug abuse and a 15-pack-year smoking history was obtained. Six weeks prior to admission, he noted left pleuritic chest pains associated with the appearance of a swelling over his left lateral chest wall.

The patient was acutely ill. Blood pressure was 116/28, heart rate 116, temperature 39°C orally. On examination, he had adequate dental hygiene, shotty anterior cervical adenopathy, dullness and bronchial breathing over his left upper thorax, and no heart murmur. A 6 cm × 6 cm swelling over the left lateral chest wall in the posterior axillary line between the seventh and tenth ribs was fixed and tender. No fluctuance was appreciated. Clubbing was present.

Laboratory tests yielded the following findings: hematocrit, 35 percent, WBC, 16,600/cu mm with 65 percent neutrophils, 8 percent bands, 19 percent lymphocytes, 6 percent monocytes, and 2 percent eosinophils. Chest roentgenogram (Fig 1) revealed volume contraction of the left lung with left upper lobe infiltrates and pleural thickening. No pleural fluid was demonstrated on a decubitus film.

Fever persisted despite administration of intravenous cefazolin. Fiberoptic bronchoscopy did not reveal any endobronchial lesion or obstruction. Chest computed tomography (CT) the third hospital day demonstrated left lower lobe and lingular atelectasis and...
pleural thickening (Fig 2). A soft tissue mass along the left lateral chest wall with a central area of decreased radiodensity was seen (Fig 3, arrow).

**Diagnosis: Thoracic actinomycosis**

Aspiration of the chest wall lesion returned pus which on staining revealed filamentous, Gram-positive bacteria in clumps that resembled sulfur granules. Gram-positive cocci in both chains and clusters were also present. No fungi or tumor cells were found. Cefazolin was discontinued and intravenous doxycycline, 100 mg every 12 hours, was started. Culture of the aspirate grew *Actinomyces* sp, *Bacteroides urealyticus*, and *Fusobacterium nucleatum*. The patient's fever defervesced the next day. On the sixth hospital day, wide incision and drainage of the chest wall abscess was done. No fistulous tract was found. The remainder of the hospitalization was unremarkable. Chest roentgenogram six months after hospital discharge showed chronic volume loss in the left thorax with rib space narrowing and hemidiaphragm elevation. No evidence of recurrence was seen. The patient still receives doxycycline, 100 mg orally every 12 hours.

Thoracic actinomycosis is distinguished for its tendency to penetrate from the lung and pleura into the chest wall, creating a draining sinus tract. Poor dental hygiene and oropharyngeal aspiration are implicated in the pathogenesis of primary thoracic actinomycosis. However, the clinical diagnosis can be difficult in the absence of a draining chest wall sinus and without a high index of suspicion. Actinomycosis can mimic and complicate bronchogenic carcinoma, tuberculosis, and fungal pneumonia. Clinical features of actinomycosis and nocardiosis can overlap. Fever, weight loss, chest pain, cough, and occasional hemoptysis are common but nonspecific findings.

Certain roentgenographic findings are suggestive of actinomycosis: (1) pulmonary lesions that penetrate through the chest wall; (2) periostitis or osteomyelitis of ribs or other bony structures contiguous with the lesion; and (3) penetration of the pulmonary lesion across an interlobar fissure. The CT can further delineate the extent of actinomycosis when anatomic boundaries are crossed. Fiberoptic bronchoscopy can detect mucosal irregularities and occasionally, endobronchial actinomycosis. Sulfur granules, while characteristic of actinomycosis, are not always diagnostic. Only recovery of Actinomyces from infected tissue by anaerobic culture is diagnostic of infection.

Prolonged antibiotic therapy with surgical drainage of abscesses or empyemas is the mainstay of treatment. Penicillin and the tetracyclines are the drugs of choice. Our patient was allergic to penicillin. Cephalosporins, chloramphenicol, clindamycin, and erythromycin can also be effective. Between 6 and 12 months of antibiotic therapy is necessary to prevent recurrences.

**References**