

## THE CLINICAL PICTURE

### VANYA D. WAGLER, DO

Captain, Medical Corps, US Army, Resident, Department of Internal Medicine, William Beaumont Army Medical Center, El Paso, TX

### SONNY HUITRON, DO

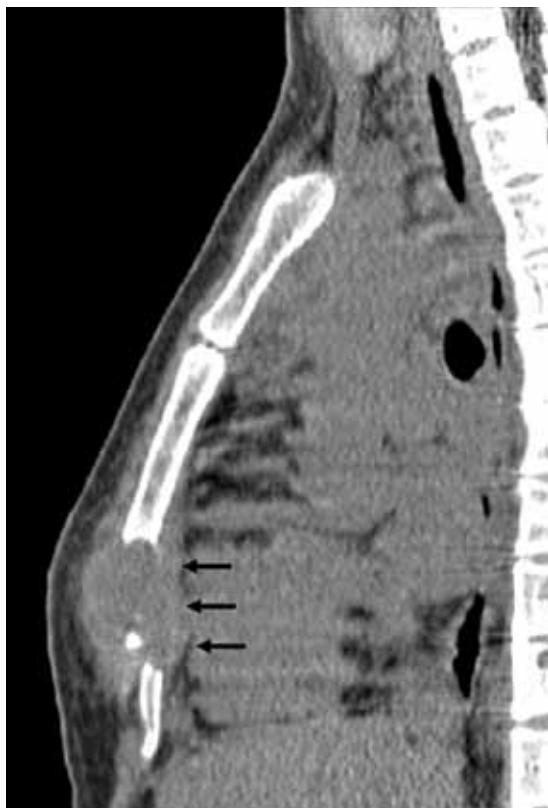
Captain, Medical Corps, US Army, Staff Physician, Department of Pathology, William Beaumont Army Medical Center, El Paso, TX

### CHRISTOPHER S. KING, MD

Major, Medical Corps, US Army, Staff Physician, Pulmonary/Critical Care Medicine, William Beaumont Army Medical Center, El Paso, TX

# The Clinical Picture

## A 26-year-old woman with a lump in her chest

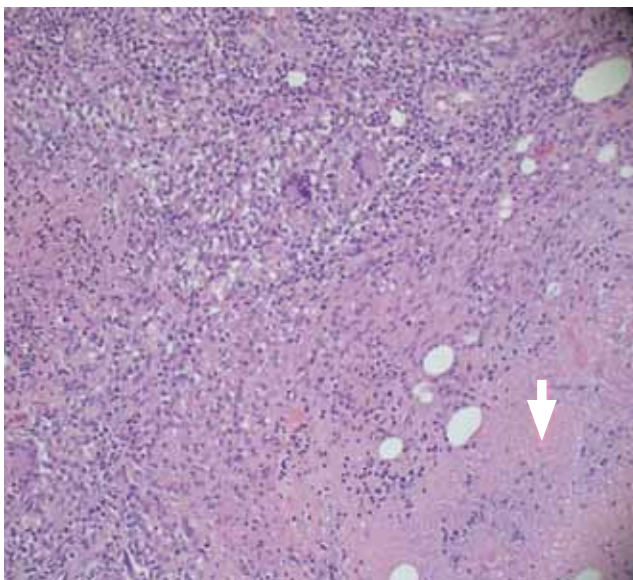


**FIGURE 1.** Sagittal computed tomography of the chest shows a soft-tissue density, 3 × 2 × 3 cm, causing bony destruction of the inferior sternum (arrows).

**A** 26-YEAR-OLD FILIPINO WOMAN presented for evaluation of sternal pain associated with a palpable mass that she had noticed 8 months earlier. She had no history of significant medical illness. She had recently immi-

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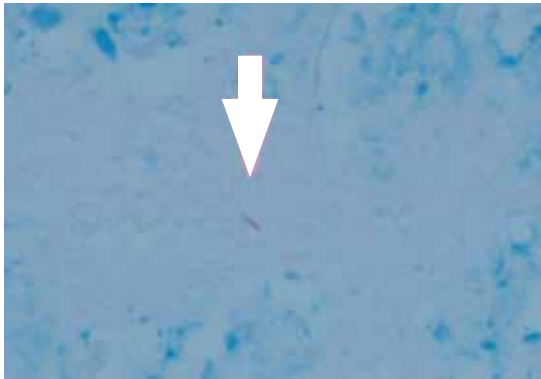


**FIGURE 2.** Histopathologic study reveals necrotizing granulomatous inflammation with giant cells (arrow) (hematoxylin-eosin, × 10).

grated to El Paso, TX, from the Philippines.

She reported no hemoptysis, fevers, or night sweats, but she said she had unintentionally lost 15 lb over the last 8 months. She reported no coughing and dyspnea. Her vital signs were normal. A skin examination revealed mild sternal erythema and a tender, nonmobile 1.5-cm mass at the lower left sternal border. There was no palpable cervical, axillary, or supraclavicular lymphadenopathy.

Results of chest radiography, a complete blood count, and a chemistry panel were within normal limits. Computed tomography of chest (**FIGURE 1**) revealed a necrotic mass and bony destruction of the inferior sternum, but no pulmonary parenchymal lesions. Open surgical biopsy of the sternal lesion (**FIGURE 2**) was performed.



**FIGURE 3.** Rare acid-fast bacilli were evident (arrow) (Kinyoun acid-fast staining, × 40).

**Q:** Which is the most likely diagnosis?

- Plasmacytoma
- Chondrosarcoma
- Extrapulmonary tuberculosis
- Lymphoma
- Metastatic breast cancer

**A:** Study of the biopsy specimen revealed necrotizing granulomatous inflammation. Of the answer choices above, only tuberculosis would be expected to cause these histopathologic findings. Rare acid-fast bacilli were found on acid-fast staining (FIGURE 3), and culture was positive for *Mycobacterium tuberculosis*, confirming the diagnosis of extrapulmonary tuberculosis. The patient’s purified protein derivative (tuberculin) skin test was strongly positive. A test for human immunodeficiency virus (HIV) was negative.

**■ EXTRAPULMONARY TUBERCULOSIS**

Extrapulmonary tuberculosis accounts for about 20% of all cases of tuberculosis.<sup>1</sup>

Risk factors for tuberculosis include advanced age, immunosuppression (eg, as occurs

in HIV infection), organ transplantation, and therapy with a tumor necrosis factor alpha inhibitor.<sup>1-4</sup> Risk factors unique to extrapulmonary tuberculosis infection include female sex and non-Hispanic black ethnicity.<sup>2</sup> Because of the high prevalence of tuberculosis in certain parts of the world, obtaining a travel or residence history is an essential part of the clinical evaluation.

Skeletal tuberculosis accounts for 11% to 27% of extrapulmonary cases and, by extrapolation, 2% to 5% of all cases of tuberculosis.<sup>1-3</sup> Although the spine is the site most commonly involved, any bone may be affected. When the chest wall is involved, the most common locations are the margin of the sternum and along rib shafts.<sup>5</sup>

Most patients present with pain and swelling. The presence of constitutional symptoms is variable, occurring in about one-third of patients.<sup>6</sup> Classically, the lesion of tuberculous osteomyelitis is described as a “cold abscess,” as it is characterized by swelling and erythema with little or no warmth. Spontaneous drainage and sinus tract formation may occur.<sup>5</sup>

The differential diagnosis of tuberculous osteomyelitis includes pyogenic bacterial infection, atypical bacterial infection (nocardia, melioidosis, brucellosis), fungal infection (coccidioidomycosis, histoplasmosis, blastomycosis), and metastatic and primary bone malignancies. Diagnosis requires a high index of suspicion, biopsy for histopathologic examination, acid-fast staining, and mycobacterial culture.<sup>7</sup>

Patients generally respond well to 6 months of a standard four-drug regimen for tuberculosis. Surgery is indicated for abscess drainage, debridement of infected tissue, spine stabilization, and relief of spinal cord compression.<sup>5</sup>

Our patient had complete resolution of her sternal mass with drug therapy alone. ■

**Patients often respond well to 6 months of a standard four-drug regimen for tuberculosis**

**■ REFERENCES**

1. Peto HM, Pratt RH, Harrington TA, LoBue PA, Armstrong LR. Epidemiology of extrapulmonary tuberculosis in the United States, 1993–2006. *Clin Infect Dis* 2009; 49:1350–1357.
2. Yang Z, Kong Y, Wilson F, et al. Identification of risk factors for extrapulmonary tuberculosis. *Clin Infect Dis* 2004; 38:199–205.
3. Keane J, Gershon S, Wise RP, et al. Tuberculosis associated with infliximab, a tumor necrosis factor alpha-neutralizing agent. *N Engl J Med* 2001; 345:1098–1104.
4. Alagarsamy S, Dhand S, Aung S, Wolff M, Bahrain M. Sternal tuberculosis: a rare case mimicking sarcoma and review of the literature. *Infect Dis Clin Pract* 2009; 17:138–143.
5. Morris BS, Maheshwari M, Chalwa A. Chest wall tuberculosis: a review of CT appearances. *Br J Radiol* 2004; 77:449–457.
6. Sandher DS, Al-Jibury M, Paton RW, Ormerod LP. Bone and joint tuberculosis: cases in Blackburn between 1988 and 2005. *J Bone Joint Surg Br* 2007; 89:1379–1381.
7. Centers for Disease Control and Prevention (CDC). Case definitions for infectious conditions under public health surveillance. <http://cdc.gov/mmwr/preview/mmwrhtml/00047449.htm>. Accessed October 6, 2011.

**ADDRESS:** Vanya D. Wagler, DO, CPT, MC, USA, William Beaumont Army Medical Center, 5005 N Piedras Street, El Paso, TX 79920; e-mail [vwagler@gmail.com](mailto:vwagler@gmail.com).