

# Diffuse joint pain in a man with an obstructed bronchus

Julie Vajnar, PA-C, RT

## CASE

A 46-year-old man went to the emergency department (ED) of a local hospital complaining of joint pain, low-grade fever, and occasional chills. He received a diagnosis of arthritis and was treated and discharged. Two weeks later, he presented in the ED of our hospital with a nonproductive cough, fever, and chills. He had lost approximately 9 to 10 pounds in the past 3 to 4 weeks and had a decreased appetite. He continued to complain of joint pain not confined to one area. He denied significant shortness of breath and hemoptysis. His medical history was negative except for smoking one pack of cigarettes per day since being a teenager. He had no significant family history. He denied any allergies.

On physical examination, he was cachectic but in no acute respiratory distress. His lungs were clear except for a few rhonchi at the left lung base. The trachea was midline. There was no palpable adenopathy. The heart rate and rhythm were regular, and there were no rubs, murmurs, or gallops. He was neurologically intact. No swelling or redness was evident on the extremities, but there was clubbing of the fingers and toes. Bowel sounds were normal, and the abdomen was nontender and nondistended. There was no organomegaly.

**What does the chest film show (see Figure 1)?**

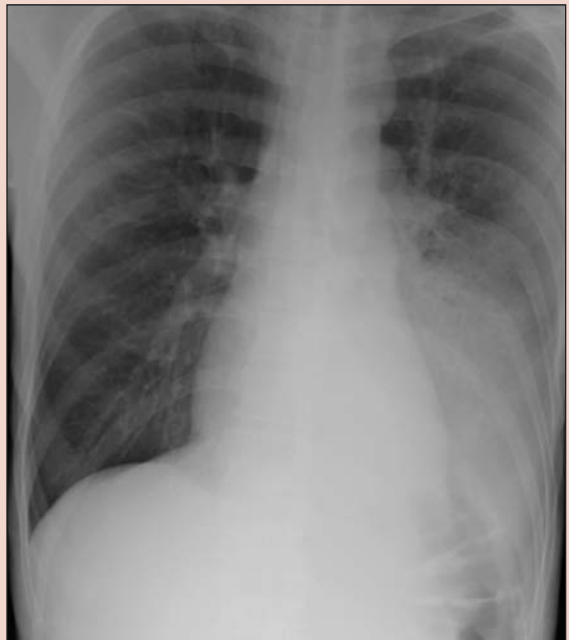
## DISCUSSION

**The chest radiograph** shows a consolidative process involving the left lower lobe and abnormal contour of the left paratracheal/para-aortic region, compatible with adenopathy. The differential diagnosis includes malignancy and infection. Given the history of a nonproductive cough and weight loss in a long-term smoker, malignancy is favored and should be investigated, especially if there is no improvement after treatment for pneumonia.

The patient was admitted and placed on antibiotics while undergoing further evaluation. CT of the chest

FIGURE 1

### Chest radiograph



confirmed adenopathy and left lower lobe consolidation secondary to an obstructed bronchus. A bronchus can be obstructed by an intrinsic (mucous plug, endobronchial neoplasm) or extrinsic (adenopathy, mass) process. In this case, the blockage was due to a mass, warranting further investigation as to its type.

Bronchoscopy and biopsies were performed. The results of these tests confirmed that the patient had small cell lung cancer. He was referred to an oncologist, who offered chemotherapy with or without radiation therapy, despite a poor prognosis.

The patient continued to complain of arthritic-type pain and because metastatic disease was possible, a radionuclide bone scan was performed.

**What does the bone scan show (see Figure 2)?**

The author practices in a radiology group at North Oaks Health System, Hammond, La. She has indicated no relationships to disclose relating to the content of this article.

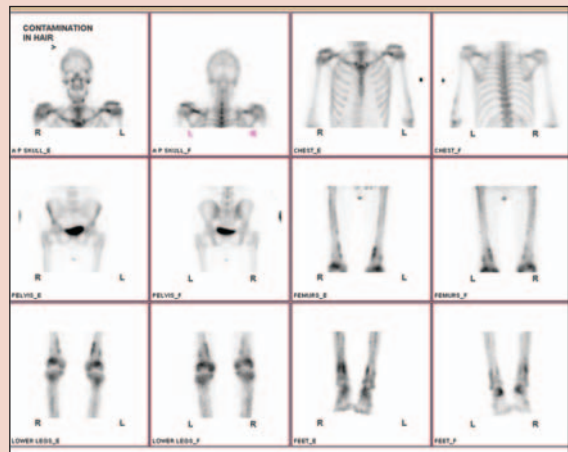
The bone scan shows increased uptake of radioisotope along the cortical aspects of the distal tibia/fibula bilaterally and distal femora as well. This distribution is called a “parallel track” sign and is seen with periosteal new bone formation. The pattern of distribution is used to differentiate periosteal new bone formation from skeletal metastasis. Metastasis usually affects the axial skeleton and medullary portion of long bones.

Although periosteal new bone formation has many causes, not too many are seen bilaterally and symmetrically. The differential diagnosis includes thyroid acropachy, chronic venous stasis, fluorosis, and primary or secondary hypertrophic osteoarthropathy (HOA).

Because of the patient’s lung cancer and clubbing of the digits, this new bone formation was thought to be from secondary hypertrophic pulmonary osteoarthropathy. HOA has more than 60 causes, pulmonary and non-pulmonary. The pulmonary causes include tuberculosis, cystic fibrosis, mesothelioma, Hodgkin’s disease, lung cancer, emphysema, bronchiectasis, and lung abscess. The nonpulmonary causes include cyanotic heart disease, ulcerative colitis, Crohn’s disease, dysentery, and esophageal and nasopharyngeal carcinoma. HOA demonstrates no sexual, racial, or age predominance, and it does not affect life expectancy. The pathophysiology is not well understood, but there are many theories. The

FIGURE 2

Radionuclide bone scan



symptoms associated with HOA are noted to subside with treatment of the underlying condition, and the scintigraphic and radiographic findings also show improvement, although the radiographic changes usually lag behind the scintigraphic changes. These studies can be helpful in detecting recurrence as well. □