Worsening dyspnea

A chest x-ray suggested that pneumonia might be to blame for our patient’s dyspnea. But when her condition worsened, a CT scan revealed the true diagnosis.

A 62-YEAR-OLD WOMAN presented with a 2- to 3-week history of fatigue, nonproductive cough, dyspnea on exertion, and intermittent fever/chills. Her past medical history was significant for rheumatoid arthritis (RA) that had been treated with methotrexate and prednisone for the past 6 years. The patient was currently smoking half a pack a day with a 40-pack year history. The patient was a lifelong resident of Arizona and had previously worked in a stone mine.

On physical examination she appeared comfortable without any increased work of breathing. Her vital signs included a temperature of 36.6°C, a blood pressure of 110/54 mm Hg, a pulse of 90 beats/min, respiratory of 16/min, and room-air oxygen saturation of 87%. Pulmonary examination revealed scattered wheezes with fine bibasilar crackles. The remainder of her physical exam was normal. Because she was hypoxic, she was admitted to the hospital.

At the hospital, a chest x-ray showed diffuse, bilateral interstitial changes (FIGURE 1).

Laboratory tests revealed a white blood cell count of 13,800/mcL (normal: 4500-10,500/mcL) with 73% neutrophils (normal: 40%-60%), 3% bands (normal: 0-3%), 14% monocytes (normal: 2%-8%), 6% eosinophils (normal: 1%-4%), and 3% lymphocytes (normal: 20%-30%). Community-acquired pneumonia was suspected, and the patient was started on levofloxacin. Over the next 2 days, her dyspnea worsened. She became tachycardic, and her oxygen requirement increased to 15 L/min via a non-rebreather mask. She was transferred to the intensive care unit.

WHAT IS YOUR DIAGNOSIS?

HOW WOULD YOU TREAT THIS PATIENT?

FIGURE 1
Chest x-ray revealed diffuse, bilateral interstitial changes
Diagnosis: Interstitial lung disease

Given the patient’s worsening respiratory status, a computed tomography (CT) scan was ordered (FIGURE 2). Review of the CT scan showed ground-glass opacification, mild subpleural honeycombing, reticulalrity, and traction bronchiectasis bilaterally at the lung bases. Bronchoscopy with lavage was performed to rule out infectious etiologies and was negative. These findings, along with the patient’s medical history of RA and use of methotrexate, led us to diagnose interstitial lung disease (ILD) in this patient.

ILD refers to a group of disorders that primarily affects the pulmonary interstitium, rather than the alveolar spaces or pleura.1 The most common causes of ILD seen in primary care are idiopathic pulmonary fibrosis, connective tissue disease, and hypersensitivity pneumonitis secondary to drugs (such as methotrexate, citalopram, fluoxetine, nitrofurantoin, and cephalosporins), radiation, or occupational exposures. (Textile, metal, and plastic workers are at a heightened risk, as are painters and individuals who work with animals.)1 In 2010, idiopathic pulmonary fibrosis had a prevalence of 18.2 cases per 100,000 people.2 Determining the underlying cause of ILD is important, as it may influence prognosis and treatment decisions.

The most common presenting symptoms of ILD are exertional dyspnea, cough with insidious onset, fatigue, and weakness.1,3 Bear in mind, however, that patients with ILD associated with a connective tissue disease may have more subtle manifestations of exertional dyspnea, such as a change in activity level or low resting oxygen saturations. The pulmonary exam can be normal or can reveal fine end-inspiratory crackles, and may include high-pitched, inspiratory rhonchi, or “squeaks.”

When a diagnosis of ILD is suspected, investigation should begin with high-resolution CT (HRCT).1,3-5 In patients for whom a potential cause of ILD is not identified or who have more than one potential cause, specific patterns seen on the HRCT can help determine the most likely etiology.5 Chest x-ray has low sensitivity and specificity for ILD and can frequently be misinterpreted, as occurred with our patient.

Rule out other causes of dyspnea

The differential diagnosis for dyspnea includes:

- Heart failure. Congestive heart failure can present with acutely worsening dyspnea and cough, but is also commonly associated with orthopnea and/or paroxysmal nocturnal dyspnea. On physical examination, findings of volume overload such as pulmonary crackles, lower extremity edema, and elevated jugular venous pressure are additional signs that heart failure is present.

- Pulmonary embolism (PE). Patients with PE commonly present with acute dyspnea, chest pain, and may also have a cough. Additional risk factors for PE (prolonged immobility, fracture, recent hospitalization) may also be present. A Wells score and a D-dimer test can be used to determine the probability of a patient having PE.

- Asthma/chronic obstructive pulmonary disease. COPD exacerbations commonly present with a productive cough and worsening dyspnea. Pulmonary exam findings include wheezing, tachypnea, increased respiratory effort, and poor air movement.

A chest x-ray has low sensitivity and specificity for interstitial lung disease and can frequently be misinterpreted, as occurred with our patient.
Patients with interstitial lung disease have a life expectancy that averages 2 to 4 years from diagnosis.
PHOTO ROUNDS

References