Pleuritic chest pain and globus pharyngeus

An AP chest x-ray provided no clues as to the cause of the patient’s substernal chest pain. Two other x-ray views, however, made the diagnosis clear.

A 22-YEAR-OLD WOMAN with a history of attention-deficit/hyperactivity disorder and childhood asthma came to the emergency department (ED) for treatment of a cramping, substernal, pleuritic chest pain she’d had for a week and the feeling of a “lump in her throat” that made it difficult and painful for her to swallow. The patient’s vital signs were normal and her substernal chest pain was reproducible with palpation. An anteroposterior (AP) chest x-ray (CXR) was unremarkable.

A “GI cocktail” (lidocaine, Mylanta and Donnatal), ketorolac, morphine, and lorazepam were administered in the ED, but did not provide the patient with any relief. She was admitted to the hospital to rule out acute coronary syndrome and was kept NPO overnight. A repeat CXR with posteroanterior (PA) and lateral views was also obtained (FIGURE 1A AND 1B).

WHAT IS YOUR DIAGNOSIS?
HOW WOULD YOU TREAT THIS PATIENT?

FIGURE 1
Posteroanterior (A) and lateral (B) chest x-rays revealed the cause of the patient’s pleuritic chest pain
The differential diagnosis for pneumomediastinum includes pericarditis, mediastinitis, Boerhaave syndrome, and acute coronary syndrome.

Pericarditis. In a patient with inflammation of the pericardium, you would hear reduced heart sounds and observe electrocardiogram (EKG) changes (eg, diffuse ST elevation in acute pericarditis). These signs typically would not be present in a patient with pneumomediastinum.

Mediastinitis. Patients with mediastinitis—inflammation of the mediastinum—are more likely to have hypotension and shock.

Boerhaave syndrome, or spontaneous esophageal perforation, has a similar presentation to pneumomediastinum but is more likely to be accompanied by hypotension and shock. Additionally, there would be extravasation of the contrast agent during swallow studies.

Patients with pneumomediastinum will report retrosternal, pleuritic pain and may also have difficulty swallowing.

**FIGURE 2**
Retrosternal air (arrows) on this chest CT confirmed the diagnosis of pneumomediastinum
Acute coronary syndrome is also part of the differential. However, in ACS, you would see ST changes on the patient’s EKG and elevated cardiac enzymes.1

Lateral x-rays are especially useful in making the diagnosis
Diagnosis is made by CXR and/or chest CT. On a CXR, retrosternal air is best seen in the lateral projection. Small amounts of air can appear as linear lucencies outlining mediastinal contours. This air can be seen under the skin, surrounding the pericardium, around the pulmonary and/or aortic vasculature, and/or between the parietal pleura and diaphragm.2 A pleural effusion—particularly on the patient’s left side—should raise concern for esophageal perforation.

For most patients, rest and pain control are key
Because pneumomediastinum is generally a self-limiting condition, patients who don’t have severe symptoms, such as respiratory distress or signs of inflammation, should be observed for 2 days, managed with rest and pain control, and discharged home.

If severe symptoms or inflammatory signs are present, a Gastrografin swallow study is recommended to rule out esophageal perforation. If the result of this test is abnormal, a follow-up study with barium is recommended.3 Gastrografin swallow studies are the preferred initial study.3 A barium swallow study is more sensitive, but has a higher risk of causing pneumomediastinitis if an esophageal perforation is present.2

If the swallow study reveals a perforation, surgical decompression and antibiotics may be necessary.1,4,5

Our patient received subsequent serial CXRs that showed improvement in pneumomediastinum. Once our patient’s pain was well controlled with oral nonsteroidal anti-inflammatory drugs, she was discharged home after a 3-day hospitalization with close follow-up. One week later, she had no further complaints and her pain had almost entirely resolved.

CORRESPONDENCE
Breanna Gawrys, DO, Fort Belvoir Community Hospital Family Medicine Residency, 9300 DeWitt Loop, Fort Belvoir, VA 22060; breanna.l.gawrys.mil@mail.mil

References