Tuberculous Pleural Effusion

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Pleural effusions are a common finding in emergency departments, with cytologic analysis traditionally required for definitive diagnosis. This article describes a classic sonographic appearance of tuberculous pleural effusion. [West J Emerg Med. 2012;13(4):313–314.]

CASE

A 33-year-old male with no previous medical history presented for evaluation of a left pleural effusion detected on chest radiograph at a local clinic. The patient had visited the clinic the previous week for flu-like symptoms that had since resolved. He denied productive cough, recent weight loss, or night sweats. His only risk factor for tuberculosis was recent immigration. On exam, the patient was a thin, comfortable-appearing man with an intermittent nonproductive cough, normal vitals, and normal pulse oximetry. Chest auscultation demonstrated decreased breath sounds at the left lung base. Bedside emergency department (ED) ultrasound revealed pleural thickening adjoining a complex pleural effusion with multiple thin septations (see video; online only). The patient was placed in respiratory isolation and admitted for tuberculosis treatment following acid-fast bacilli positive sputums.

DISCUSSION

Approximately 13,000 cases of tuberculosis are reported in the United States each year. Foreign-born and racial/ethnic minorities continue to bear a disproportionate burden of the disease.[1] ED physicians are likely to have primary contact with these and other individuals unlikely to receive timely care from other settings.

Pleural effusions are associated with fluid overload, tuberculosis, and malignancy, among other conditions. Previous authors have subdivided effusions into 4 types by sonographic appearance: anechoic, homogeneously echogenic, complex septated, and complex nonseptated.[2,3] Studies and guidelines applying this scheme have demonstrated ultrasound to be a useful diagnostic aid, particularly in differentiating tuberculous from other etiologies.[4,5] Pleural thickening and a complex septated pattern, with fibrinous strands in the pleural space producing a weblike or branching appearance, has been strongly associated with tuberculosis.[6–8] Chen et al[9] found a 96% specificity for tuberculous pleural effusions when differentiating between tuberculosis and malignancy.

Bedside ultrasound examination of effusions is best performed using a combination of high- and low-frequency probes. A higher-frequency (10 MHz) probe gives a more detailed view of the effusion, while the 3-MHz lower-frequency probe provides a wider view. The probe should be positioned along the lateral chest wall over the effusion.

In evaluating a patient with a pleural effusion, increasing pretest probability of a specific etiology may eliminate unnecessary invasive procedures. Ultrasound appearance of a tuberculous pleural effusion in patients with low-to-moderate suspicion for the disease will assist in appropriate allocation of ED resources and rapid isolation from the general public. With the growing availability of bedside ultrasound, knowledge of this common appearance of tuberculous effusions can assist providers in rapidly stratifying and advancing care of otherwise challenging patients.

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