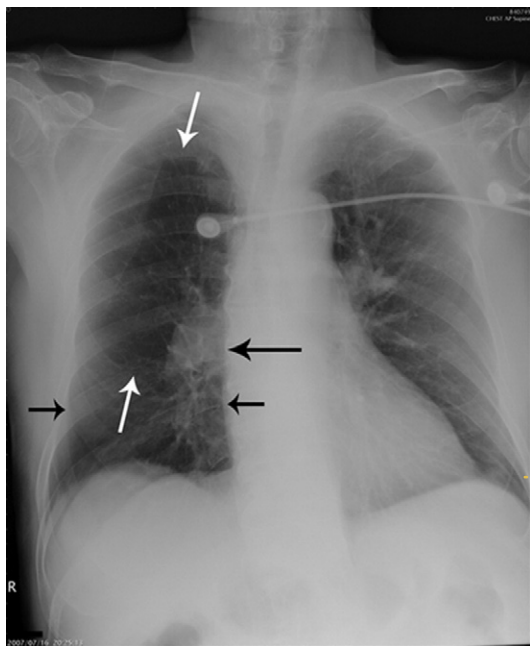


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0196-0644/\$-see front matter  
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doi:10.1016/j.annemergmed.2008.02.022



**Figure 1.** The chest radiograph.



**Figure 2.** Contrast-enhanced chest computed tomography.



**Figure 3.** Non-contrast-enhanced computed tomography. Used with permission of Chun-Fu Hsieh, MD, Department of Emergency Medicine, Chi-Mei Medical Center, Yung Kang City, Tainan, Taiwan.

[Ann Emerg Med. 2008;52:492.]

A 79-year-old man with prostate cancer and multiple bony metastasis presented to our emergency department (ED) because of recent progressive dyspnea. On arrival, he had marked respiratory distress and clear breathing sounds. His respiratory rate was 30 breaths/min, and the oxygen saturation was 81% on room air. Chest radiography (Figure 1) and chest computed tomography (CT) (Figures 2, 3) were obtained.

*For the diagnosis and teaching points, see page 495.*

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## IMAGES IN EMERGENCY MEDICINE

(continued from p. 492)

### DIAGNOSIS:

*Acute pulmonary embolism.* The chest radiograph revealed enlargement of the right pulmonary trunk (long black arrow), oligemia distal to the engorged pulmonary trunk (area between white arrows), and compensatory hyperemia (area between short black arrows) (Westermarck's sign<sup>1</sup>) (Figure 1). The contrast-enhanced chest CT demonstrated a filling defect in the right main pulmonary artery (black arrow), almost total occlusion (Figure 2). The non-contrast-enhanced CT demonstrated oligemia (area between white arrows) and compensatory hyperemia (area between black arrows) (Figure 3), compatible with the chest radiographic findings. The patient began receiving anticoagulation therapy, with a combination of heparin and warfarin, and his symptoms subsided gradually.

Up to two thirds of all ED patients have undetected pulmonary embolism.<sup>2</sup> If not diagnosed early, it will cause critical morbidity and mortality. Westermarck's sign is not usually observed on the chest radiography of acute pulmonary embolism. However, when it is detected, this lethal disease should be highly suspected. Chest CT could detect the embolus in the pulmonary artery and uneven distribution of vascularity. These CT findings confirm the diagnosis of pulmonary embolism.

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