IMAGES IN HOSPITAL MEDICINE

A Hill Hidden by the Clouds

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A 33-year-old woman, with a past medical history of polysubstance abuse and recently treated infective endocarditis, is admitted with septic shock due to pneumonia. The chest x-ray reveals right middle and lower lobe infiltrates plus a right pleural effusion (Figure 1). Because of persistent tachycardia and hypoxia, computed tomography (CT) of the chest with contrast was performed. It revealed a large pulmonary embolus (PE) involving the right main pulmonary artery (PA) and an absence of distal arterial filling (Figures 2, 3). Transverse images demonstrated a wedge-shaped density consistent with a pulmonary infarct (Figure 4).

A chest radiograph is often abnormal in patients with PE; the most commonly reported findings include atelectasis and nonspecific parenchymal opacities[1,2]. Such classic findings suggestive of a PE are rare[3] and their presence can be masked by overlying pathology from an unrelated process. Visualization of a Hampton's hump (Figure 4), a peripheral wedge-shaped density, was obscured in our patient and only visualized on CT imaging. Our patient also had other radiologic findings described in the setting of a PE including: a unilateral dilation of the central PA (Fleischner's sign), abrupt tapering of a PA due to embolic occlusion (Knuckle sign) (Figure 2), oligemia of the affected lung (Westermark sign) (Figure 3), and a sausage-like appearance of the right PA (Palla's sign) (Figure 1). Contrast CT may also demonstrate thrombus encircled by contrast (Polo Mint sign).

Notes

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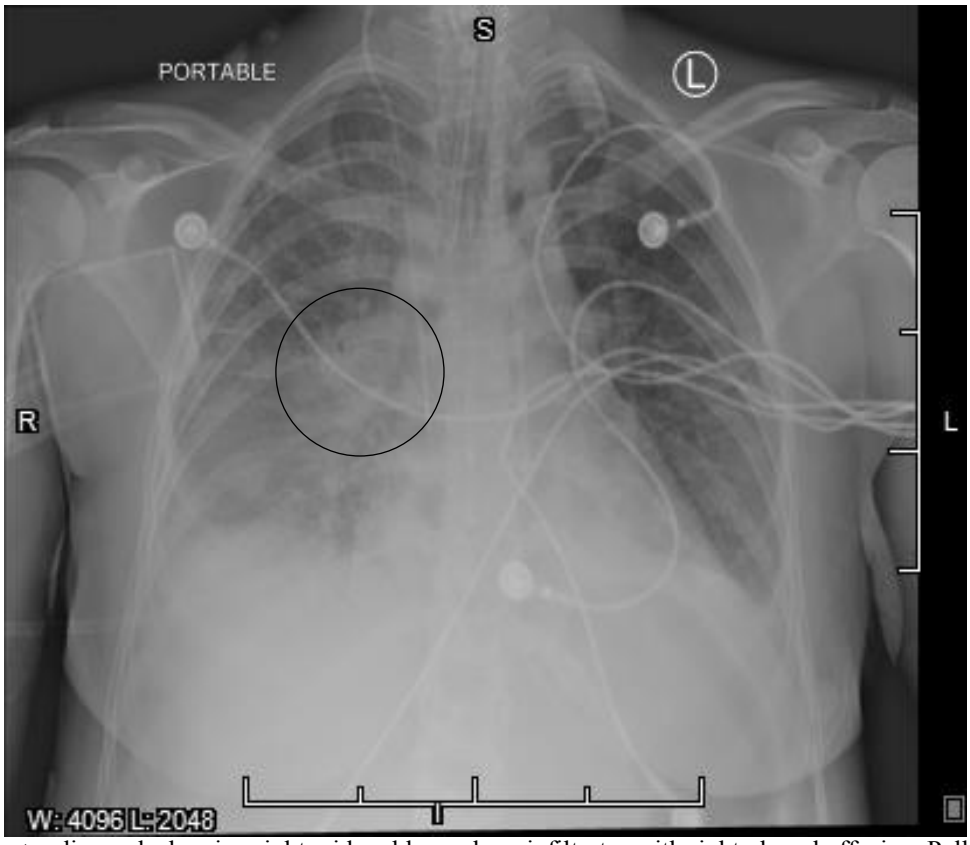

Figure 1. Chest radiograph showing right mid and lower lung infiltrates with right pleural effusion. Palla's sign is seen in the circle. Ancillary findings include endotracheal tube and central venous catheter appropriately placed.

Figure 2. CT pulmonary angiography showing a large pulmonary embolus (arrow) involving the right pulmonary artery. The right pulmonary artery is also dilated (Fleischner sign) compared to the left side.

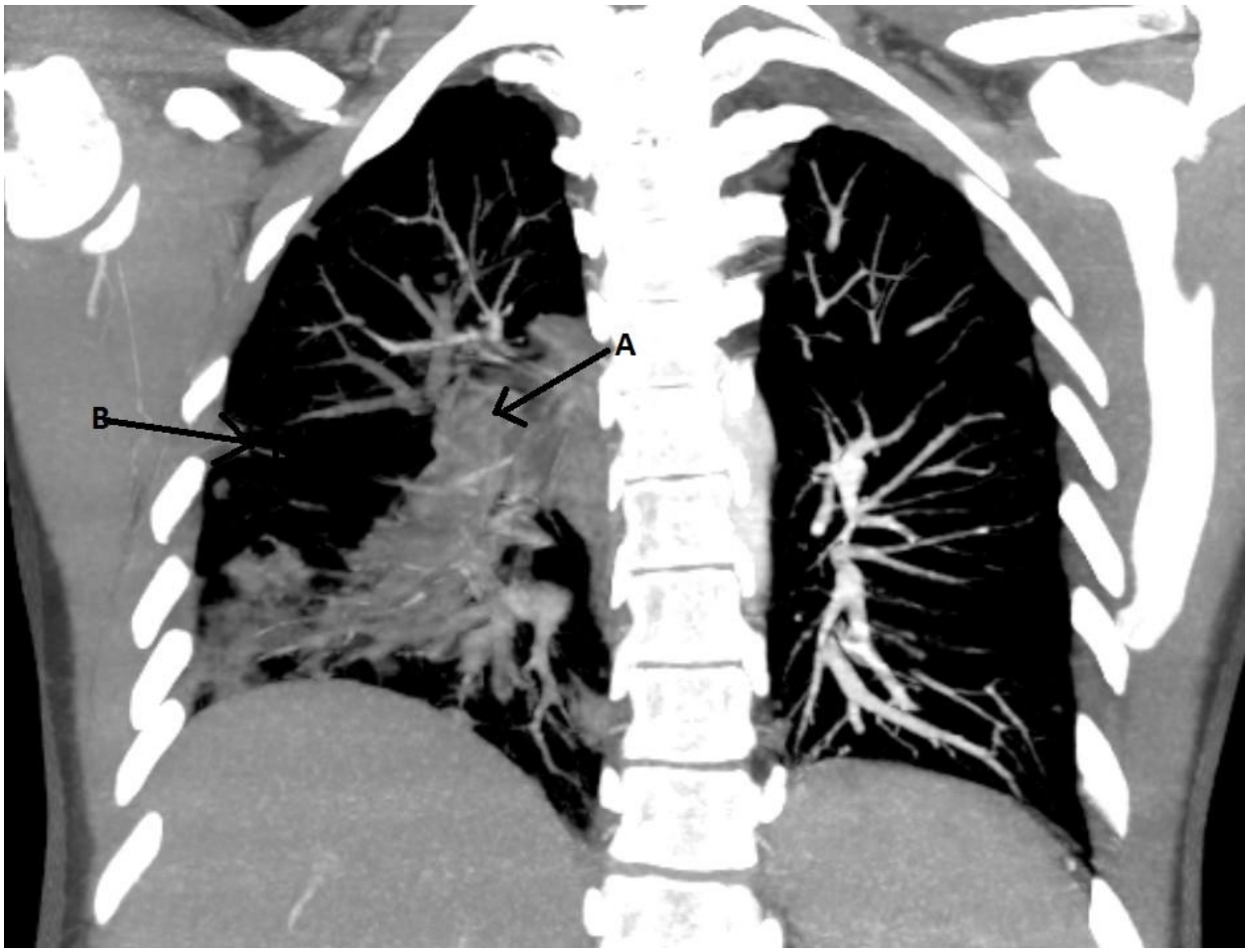

Figure 3. Abrupt cutoff due to the pulmonary embolus (arrow A) followed by oligemia distally (Westermark sign, arrow B).

Figure 4. Transverse CT with lung window with arrow showing a pleural-based, wedge-shaped density (Hampton's hump)