

Medical Image of the Month: Hampton Hump and Palla Sign

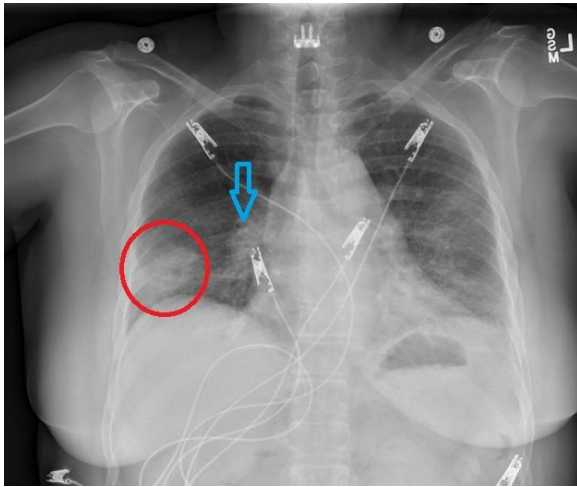


Figure 1. A chest radiograph demonstrates a wedge-shaped opacity in the right lung base (red circle) and enlargement of the right descending pulmonary artery branch (blue arrow) consistent with a Hampton hump and Palla sign, respectively.

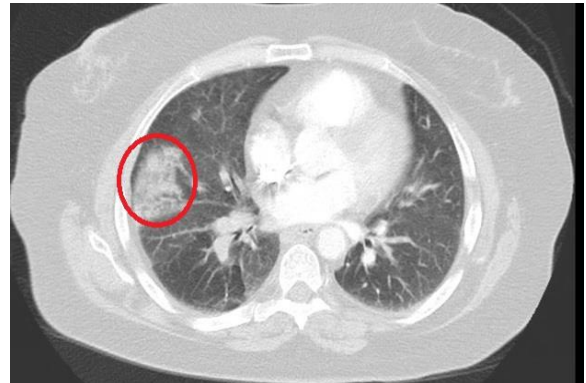


Figure 2. A computed tomography angiogram (CTA) of the chest in a lung window demonstrates a wedge-shaped opacity in the right middle lobe consistent with a Hampton hump (red circle).

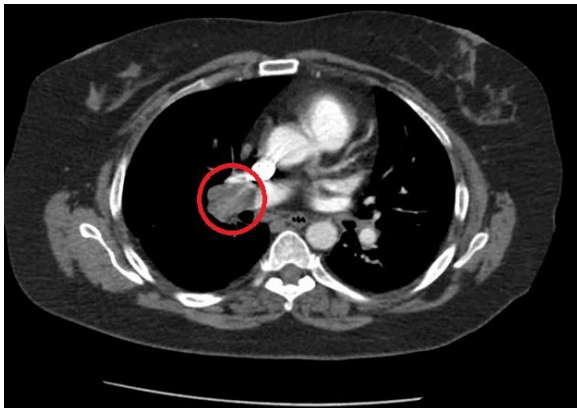


Figure 3. A CTA of the chest demonstrates an embolus in the right main pulmonary artery which appears slightly dilated (red circle).

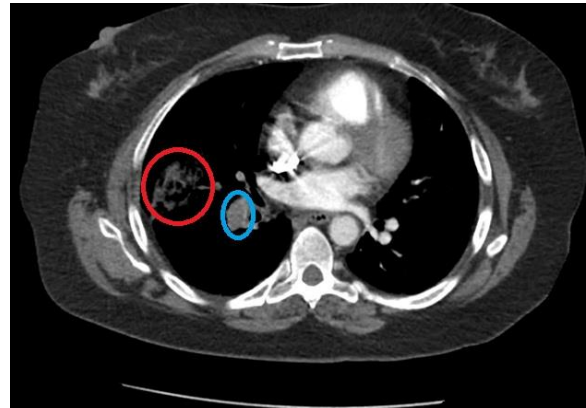


Figure 4. A CTA of the chest demonstrates extension of the pulmonary embolus into the right lower lobe pulmonary arterial branch (blue circle) along with a right middle lobe pulmonary infarction (red circle) which is better demonstrated in Figure 2.

A 51-year-old lady presented to emergency room with acute, severe, right-sided pleuritic chest pain, mild cough and dyspnea at rest. She underwent a lumbar spine laminotomy and foraminotomy twelve days prior to her presentation with limited mobility after her operation. On examination, she was tachypneic and tachycardic. Her blood pressure and oxygen saturations on room air were normal. Chest auscultation revealed a few crackles in the right lung base. There was no pedal edema or calf tenderness.

A chest radiograph demonstrated a right lower lobe wedge-shaped opacity along with right hilar prominence (Figure 1). She was initially diagnosed with a right lower lobe pneumonia and was admitted to step-down unit for further management. However, her history, clinical examination, and chest radiograph findings suggested the high likelihood a pulmonary embolism. A computed tomography angiogram (CTA) of the chest confirmed the diagnosis of a pulmonary embolism (Figures 2-4).

Based her clinical presentation and radiology results, the patient was diagnosed with a sub-massive pulmonary embolism (PE). She was treated with an intravenous heparin drip. She was hemodynamically stable throughout the hospital admission. Her echocardiogram showed no evidence of right ventricular strain. Eventually, she was transitioned to oral anticoagulation and was discharged home in good condition.

Discussion

The wedge-shaped right lower lobe opacity and right hilar prominence correspond to a Hampton hump and Palla sign, respectively. A Hampton hump represents a pulmonary infarction secondary to PE, and it was named by the radiologist Aubrey Hampton in 1940 (1). The Palla sign is an enlarged right descending pulmonary artery, an observation made in 1983 by a radiologist, Antonio Palla (2). Both signs can be seen on chest radiography and may aid in the diagnosis of a PE.

Although these radiologic findings of PE are rare, practicing physicians should be aware of these findings as they can be extremely helpful and expediate the diagnosis of a PE. On the other hand, misinterpretation of these findings can lead to a delay in the diagnosis of other significant chest pathologies.

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References

1. Hampton AO, Castleman B. Correlation of postmortem chest teleroentgenograms with autopsy findings with special reference to pulmonary embolism and infarction. *Am J Roentgenol.* 1940;43:305–26.
2. Palla A, Donnamaria V, Petruzzelli S, Rossi G, Riccetti G, Giuntini C. Enlargement of the right descending pulmonary artery in pulmonary embolism. *AJR Am J Roentgenol.* 1983;141:513-7. [\[CrossRef\]](#) [\[PubMed\]](#)