QUIZ

LINEAR SHAPED PERFUSION DEFECTS ON RADIONUCLIDE LUNG PERFUSION STUDIES

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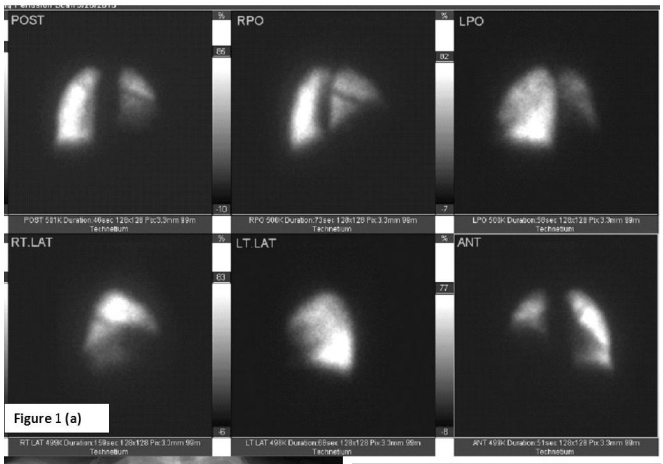

Figure 1 (a)

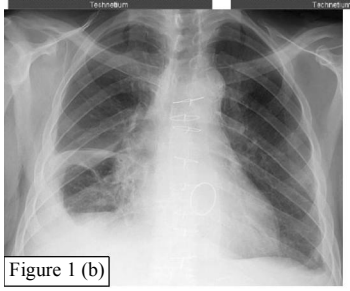

Figure 1 (b)

Case 01 Summary: 61 years old male with history of CABG 3 months back presented with short history of right sided chest pain and dyspnea.
A Tc-99m labeled Macro Aggregated Albumin lung perfusion scan was performed (Figure 1-a) with a X-ray chest PA view (Figure 1-b).

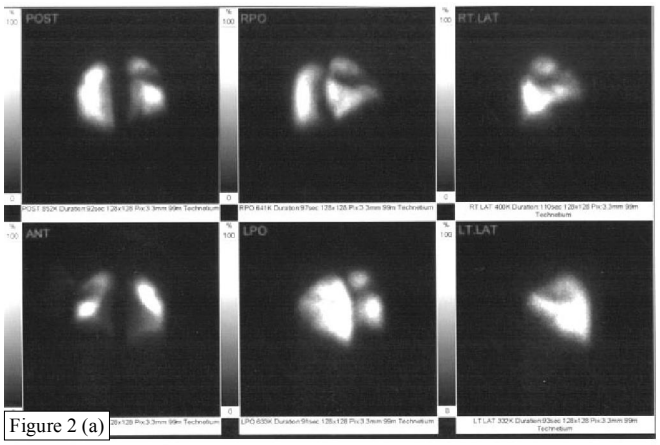

Figure 2 (a)

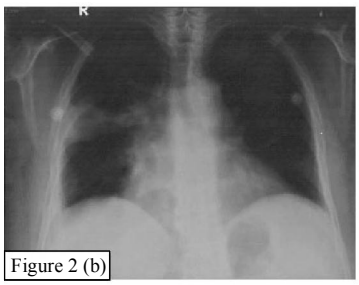

Figure 2 (b)

Case 02 Summary: 70 years old male known case of diabetes, hypertension and coronary artery disease presented with 3 days history of fever, right sided chest pain and dyspnea.
A Tc-99m labeled Macro Aggregated Albumin was performed (Figure 2-a) with a X-ray chest PA view (Figure 2-b).

Questions

Q1. What is your diagnosis for both cases?

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QUIZ

Answers

In both cases lung perfusion scans show linear shaped perfusion defects over right lung in the region of fissure. In Case 01 perfusion defect is more slim and uniform while in Case 02 it is wider and irregular. These defects do not follow anatomy of a particular bronchopulmonary segment, neither wedge shaped characteristic for pulmonary embolism. Since ventilation study was not available, these defects were correlated with recent chest radiographs. In case 01, radiograph shows a concomitant effusion over right lung fissure (matching defect due to effusion). In case 02, radiograph shows a concomitant irregular linear shaped parenchymal opacity over middle lobe of right lung (matched defect due to infection).

The diagnostic criteria for pulmonary embolism is segmental mismatch (wedge shaped perfusion defect with normal ventilation) while a matched defect is considered secondary to parenchymal disease. Prospective Interpretation of Pulmonary Embolism Disease (PIOPED) is used for perfusion and ventilation scans and vast majority of studies fall in indeterminate category (20-80% probability for PE) in patients with history of COPD or other associated disorders. Recently SPECT lung perfusion-ventilation studies have been recommended as a standard of care with binary reporting criteria (PE positive or negative).[1]

References

1. Graham MM. Ventilation – perfusion lung scanning: Stuck in rut?. JNM 2014; DOI 10.2067/ jnumed. 114.144949