

PET/CT of COVID-19 as an Organizing Pneumonia

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Abstract: An 85-year-old woman with history of melanoma is referred for a follow-up ¹⁸F-FDG PET/CT. ¹⁸F-FDG PET/CT scan showed bilateral and peripheral ground-glass opacities in upper and lower pulmonary lobes surrounded by consolidations of crescent shape with increased FDG uptake, findings compatible with organizing pneumonia. Following further inquiry, the patient reported low-grade fever, sore throat, and fatigue for the past 6 days. Because of the ongoing COVID-19 pandemic, the patient was tested for SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), which resulted positive.

Key Words: coronavirus infection, PET/CT scan, pneumonia

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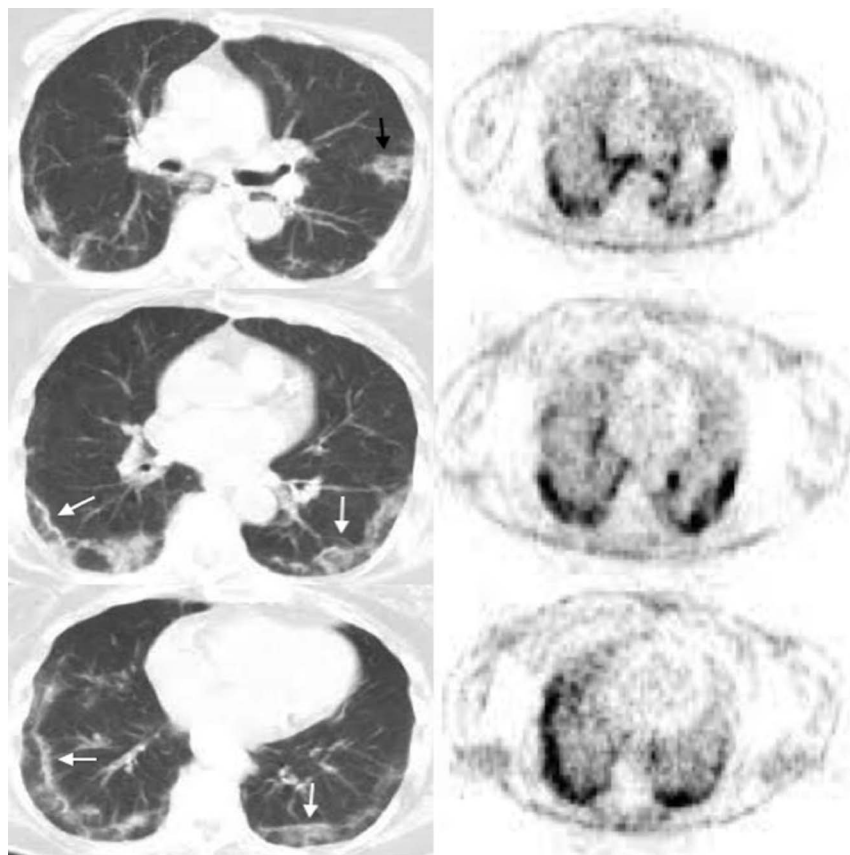


FIGURE 1. **A,** Chest CT scan. **B,** PET. We report the case of an 85-year-old woman with history of melanoma referred for FDG PET/CT. The PET/CT showed bilateral and peripheral ground-glass opacities with areas of focal consolidation primarily in left upper lobe (**A**, black arrow) and crescent-shaped consolidations in right and left lower lobes (**A**, white arrows). These findings are also known as reversed halo sign. ^{18}F -FDG PET/CT showed increased FDG uptake (**B**). ^{18}F -FDG PET/CT findings are compatible with an organizing pneumonia pattern suggestive of an infectious or inflammatory etiology. Following further inquiry, the patient reported history of low-grade fever, fatigue, and sore throat for the past 6 days. The patient was referred to the emergency department where, after careful review of the symptoms, she underwent a reverse transcriptase–polymerase chain reaction for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which tested positive. She was admitted to the hospital and discharged 5 days later with complete resolution of the initial symptoms after treatment. COVID-19 is a disease caused by SARS-CoV-2, a new coronavirus that was first reported in China. Cough and fever are the most common symptoms, but the disease could be fatal in patients with multiple comorbidities.^{1,2} The diagnosis of COVID-19 could be challenging because symptoms can overlap with other diseases such as influenza, adenovirus, Middle East respiratory syndrome, or SARS.³ CT scan is a very sensitive tool in initial stages of the disease,⁴ and findings often consist in unilateral or bilateral ground-glass opacities (often rounded morphology) with or without consolidation in early phases. As time passes, superimposed consolidations over previous ground-glass opacities are the most frequent pattern with septal thickening, bronchiectasis, pleural thickening, and effusion.^{5–7} ^{18}F -FDG PET/CT findings include avid lung parenchyma and mediastinal node FDG uptake, reflecting a significant inflammatory response.^{8–11} Although ^{18}F -FDG PET/CT is not routinely indicated for inflammatory disease, COVID-19 may be found incidentally,¹⁰ and nuclear medicine professionals must be aware of the typical findings.^{12–15}