Laboratory-Proven Asymptomatic SARS-CoV-2 (COVID-19) Infection on ^{18}F -FDG PET/CT

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Abstract: An 87-year-old man with primary salivary duct carcinoma and hepatic metastases was referred for restaging. ^{18}F -FDG PET/CT demonstrated new FDG-avid ground-glass opacities with intralobular septal thickening in both lungs with a peripheral dominant distribution. This was interpreted as a pattern highly suggestive of COVID-19 pneumonia, and the referring physician was contacted. The patient was currently asymptomatic and without clinical evidence of active pneumonia. However, the patient tested positive for COVID-19 using real-time reverse transcription–polymerase chain reaction. This case demonstrates that even asymptomatic outpatients undergoing PET/CT should be evaluated for radiologic findings suggestive of COVID-19 during this pandemic.

Key Words: COVID-19, FDG PET/CT, ground-glass opacities, intralobular septal thickening, SARS-CoV-2 infection

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FIGURE 1. A 87-year-old man with primary salivary duct carcinoma and hepatic metastases was referred for restaging with ^{18}F -FDG PET/CT. **A**, ^{18}F -FDG PET maximum intensity projection of the body demonstrates multiple FDG-avid foci overlying the thorax (arrows), as well as an ^{18}F -FDG-avid hepatic metastasis (curved arrow). Prominent but physiologic ^{18}F -FDG avidity was also seen in the colon (arrowheads). Axial CT and ^{18}F -FDG PET images at the level of upper lungs (**B**), aortic arch (**C**), and mainstem bronchi (**D**) demonstrate that the FDG avidity corresponds to multiple areas of ground-glass and patchy opacities with intralobular septal thickening in both lungs (arrows). Despite being asymptomatic for pneumonia, these imaging findings suggested COVID-19 infection. The patient tested positive for COVID-19 using real-time reverse transcription–polymerase chain reaction. COVID-19 is a pneumonia caused by the SARS-CoV-2 virus, first identified in China and now pandemic.¹ SARS-CoV-2 infection may present with a broad array of findings, ranging for asymptomatic infection, through upper and lower respiratory symptoms of varying severity, to death.² The current criterion-standard diagnostic test for SARS-CoV-2 infection is real-time reverse transcription polymerase chain reaction (RT-PCR) test of viral RNA collected from upper respiratory tract samples. It has recently been reported that these molecular tests may yield false-negative results, and supplementary role of clinical data, including laboratory examination results and CT features, can be considered.³ The most common CT findings of COVID-19 pneumonia are ground-glass opacities and intralobular septal thickening with a peripheral dominant distribution, as seen in our patient. Consolidative opacities have correlated with more severe clinical symptoms, which were lacking in our asymptomatic patient.^{4–8} This case demonstrated that outpatient ^{18}F -FDG PET/CT studies can identify radiologic signs of COVID-19 pneumonia, even in asymptomatic patients. Outpatients undergoing oncologic ^{18}F -FDG PET/CT should be evaluated for radiologic findings suggestive of COVID-19 during this pandemic. Imaging findings leading to a positive COVID-19 laboratory test could lead to quarantine of a patient.