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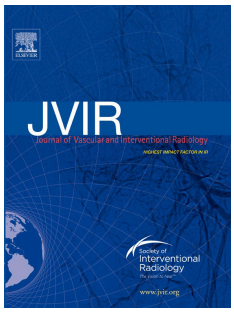


Diagnosis of Asymptomatic COVID-19 Infection in a Patient Referred for CT Lung Biopsy

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**Title**: Diagnosis of Asymptomatic COVID-19 Infection in a Patient Referred for CT Lung Biopsy

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As the prevalence of COVID-19 infection continues to rise, there is increased risk of disease transmission to healthcare workers performing procedures where the virus may aerosolize, such as computed tomography (CT) guided transthoracic lung biopsy. We report a case of an asymptomatic patient who was diagnosed with COVID-19 infection based on imaging findings at the time of CT guided transthoracic lung biopsy. IRB approval was not required for this case report.

A 61 year-old asymptomatic male with prior tonsillar cancer was referred for computed tomography (CT) guided transthoracic lung biopsy of a suspicious nodule identified on chest CT one month prior (Figure 1). Pre-biopsy laboratory testing demonstrated a mildly decreased white blood cell count of 3.1k/mm2 (normal 4-11), with otherwise normal laboratory values.

Pre-procedural CT in the prone position re-demonstrated the suspicious left lower lobe nodule, as well as multiple new ground-glass and nodular opacities in the periphery of both lungs (Figure 2). The imaging findings raised concern for possible asymptomatic COVID-19 infection, and the lung biopsy was postponed. The patient was subsequently referred for polymerase chain reaction (PCR) testing, which confirmed COVID-19 infection.

Up to 50% of patients infected with COVID-19 are either asymptomatic or capable of pre-symptomatic disease transmission (1). A recent study of PCR proven COVID-19 patients found that 54% of the asymptomatic cohort had lung opacities present on CT (2). The most commonly reported chest CT findings of COVID-19 infection include peripheral predominant ground glass opacities and consolidations, sometimes with a rounded morphology (3).

Although COVID-19 infection is transmitted primary through direct contact or respiratory droplets, patients with a cough can aerosolize the virus. Because many of the complications from CT-guided transthoracic lung biopsy are likely to induce coughing (4), there is increased risk of disease transmission to healthcare workers who may be using only standard universal precautions during the procedure.

With widespread community transmission of COVID-19 in many parts of the United States, interventional radiologists performing CT-guided transthoracic procedures should carefully review pre-procedural imaging for findings associated with COVID-19 infection, including in asymptomatic patients. Depending on the clinical setting, it may be prudent to either defer the interventional procedure and obtain COVID-19 testing or use more stringent airborne precautions to avoid accidental exposure to the COVID-19 virus.

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Figure 1.

Non-contrast chest CT one month prior to transthoracic lung biopsy demonstrating a suspicious 1.1x1.5cm left lower lobe nodule. No other lung abnormalities were present.

Figure 2. Pre-procedural CT in the prone position prior to CT guided transthoracic lung biopsy, from cranial to caudal (A-C). There are multiple new ground glass opacities in the lung periphery, some with a rounded morphology (blue arrows). Suspicious left lower lobe nodule persists (white arrow).