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Case Report

Unsuspected COVID-19 pneumonia suggests need for higher level of personal protective equipment usage during routine radiologic examinations: Two case reports ^{☆,☆☆}

Megan H Lee, MD^{*}, Franco Verde, MD, Pamela T Johnson, MD, Elliot K. Fishman, MD

The Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins University School of Medicine, 601 N. Caroline Street, JHOC 3235-A, Baltimore, MD 21287, USA

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ABSTRACT

Two case reports demonstrating the need for enhanced usage of personal protective equipment of face shield, respirator, gloves, and gown during routine radiologic evaluation who may screen negative for COVID-19 and or atypical COVID-19 symptoms. First case is of a 42-year-old woman undergoing preoperative evaluation for endometrial cancer in the outpatient setting. The second case is of a 49-year-old woman presenting with abdominal pain, nausea, and vomiting for abdominal CT imaging from the emergency department. Both cases demonstrate typical lung imaging finding of COVID-19. These cases highlight the need for additional precautions in the outpatient and emergency setting even for patients in whom COVID-19 infection is not suspected.

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Introduction

The current Coronavirus disease 2019 (COVID-19) pandemic is one that has pervaded every aspect of life. As the pandemic continues, hospitals and medical facilities are adapting to prioritize resources for the increasing number of cumu-

lative cases and prolonged duration of the pandemic. Imaging volumes dramatically decreased as all noncritical diagnostic and management interventions were postponed, though elective procedures have been restarted in many areas. Even in patients with COVID-19, the American College of Radiology advises against computed tomography (CT) scanning unless the results will alter management decision-making [1].

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^{☆☆} All authors meet all 4 ICMJE criteria.

^{*} Corresponding author.

E-mail address: mlee258@jh.edu (M.H. Lee).

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Nonetheless, some imaging is still required for pulmonary and nonpulmonary complications in COVID-19 patients and patients under investigation (PUI), and reports reveal an increased incidence of pulmonary embolism and stroke [2,3].

Radiology departments have modified operations to decrease the risk of transmission to healthcare workers and other patients. In the emergency room or inpatient setting, this involves reserving imaging in COVID-19 patients or PUI for high yield situations where the result of the imaging study is expected to change management or critically alter the understanding of the patient's condition. For patients who are confirmed to have COVID-19 or are PUI, appropriate precautions are taken to decrease the risk of transmission to technologists, nurses, and other patients, including terminal cleaning and 1-3 hours intervals between patients after imaging a COVID-19 patient. The purpose of our report is to highlight the unrecognized risk of scanning asymptomatic patients for other indications and recommend additional levels of protection for technologists and nurses when imaging any patient during this pandemic.

Case Report

Institutional review board approved waiver of consent.

Case 1

A 42-year-old woman was scheduled for a preoperative CT of the chest, abdomen, and pelvis at one of our outpatient imaging centers, prior to hysterectomy for endometrial cancer. She was screened by telephone the day prior for symptoms of COVID-19 and responded negatively. No other evaluation (eg, temperature check) was performed by radiology staff. The patient was masked during the encounter. Technologists performing the exam utilized face shield, surgical mask, and gloves. Her chest CT demonstrated bilateral, patchy ground-glass opacities, some of which had a rounded morphology (Fig. 1), consistent with the typical imaging pattern of COVID-19 [4]. Findings were reported with standard reporting language recently published in the Radiological Society of North America statement paper [4]. The COVID-19 diagnosis was confirmed within 24 hours via nasal swab polymerase chain reaction.

Case 2

A 49-year-old woman presented to the emergency department with weakness, abdominal pain, and nausea with several episodes of nonbloody, nonbilious vomiting and diarrhea since the prior evening. She denied fever, chills, chest pain, cough, sore throat, or rhinorrhea. There were no known sick contacts. On presentation, the patient was afebrile with normal oxygen saturation on room air but hypotensive and in renal failure. Patient was not in standard isolation for PUI or

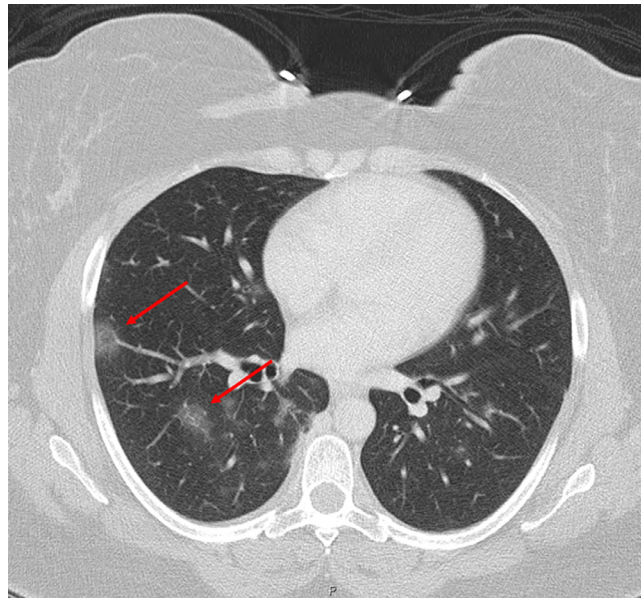


Fig. 1 – Case 1 - A 42-year-old woman for preoperative CT imaging of the chest, abdomen, and pelvis. IV contrast enhanced CT of the chest in lung window demonstrates bilateral, peripheral, areas of ground glass opacities with a rounded morphology (arrows).

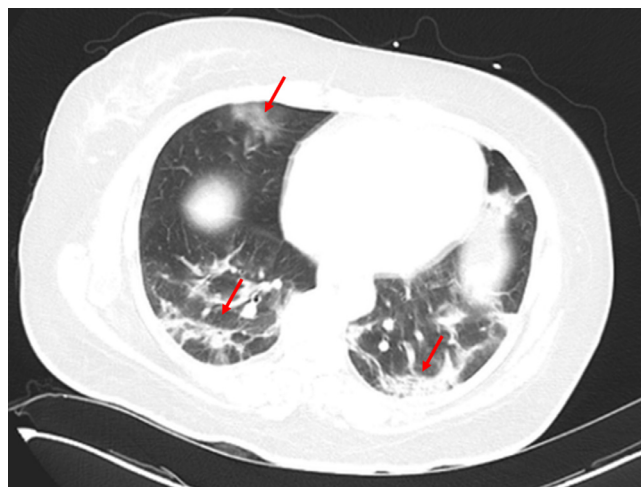


Fig. 2 – Case 2 – A 49-year-old woman presenting to the emergency department for evaluation of abdominal pain, nausea and vomiting. Axial noncontrast CT of the lung bases reveals multifocal ground-glass and consolidative opacities (arrows), typical for COVID-19 infection.

flagged in the electronic medical record as PUI. Technologists performing exams utilized typical face shield, surgical mask, and gloves. Noncontrast CT of the abdomen and pelvis revealed no evidence of acute bowel or renal pathology, but the partially imaged lung bases demonstrated typical features of COVID-19 infection with consolidative and ground-glass opacities (Fig. 2). Findings were reported with standard reporting

language recently published by Radiological Society of North America statement paper [4].

The patient was placed in isolation with in-house COVID-19 testing performed, which resulted positive less than 12 hours later, followed by transfer to the dedicated COVID-19 unit at the main institutional hospital. The patient worsened prior to transfer and was intubated the following day.

Discussion

Patients who are under investigation for COVID-19 or who test positive are treated with a higher level of care to avoid patient to personnel transmission with isolation, respirator, and gown usage. Patients who are not under investigation are not tested in every case unless being admitted to the hospital for other reasons such as preoperative testing, as is now the usual protocol. Transmission from asymptomatic individuals has been reported [5,6] and is the most troublesome aspect of this disease to prevent patient to personnel transmission. While inquiring about symptoms prior to the patient's appointment is mandatory, this method will by no means prevent all those with COVID-19 from presenting to radiology facilities and undergoing imaging. As more patients present for elective imaging that was previously postponed, it remains important to maintain a high level of vigilance to curb the spread of the virus. Given the negative outcomes with delaying care (medical and economic), institutions are now implementing other means to curb transmission rather than drastic reductions in services. Personnel that have close contact with asymptomatic patients should consider higher levels of PPE such as routine N95 use.

Conclusion

It is incumbent upon radiology practices to take measures to protect their staff and patients in all practice settings. At a

minimum, this requires the use of basic personal protective equipment (face shield, surgical mask, and gloves) by those directly interacting with patients and meticulous sanitizing measures between patients. Personnel that have close contact with any patient should consider routine N95 use. As COVID-19 cases continue to increase, incidental and atypical presentations will occur more frequently.

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