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Chest Imaging of COVID-19 Pneumonia

Richardson AC*, Reubens RR, O'Connor AM and Blosser KM

University of Maryland Medical Center, Department of Emergency Medicine, Baltimore, Maryland, USA

***Corresponding author:**

Adam C. Richardson,
Department of Emergency Medicine, University of Maryland, 110 S Paca Street, 6th Floor, Suite 200, Baltimore, MD 21201; Tel: 410-328-9595;
E-mail: AdamRichardson@umm.edu

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Clinical Image

A 52-year-old female presented to the emergency department (ED) with fatigue, shortness of breath and cough eight days after being diagnosed with COVID-19. She appeared ill but not toxic, and uncomfortable but not in extremis. Her chest x-ray revealed patchy opacities in bilateral lung bases consistent with multifocal pneumonia (figure 1). She was mildly tachypneic, tachycardic and hypoxic, which prompted the team to order a computed tomography angiogram (CTA) to rule out a pulmonary embolism and further evaluate the infiltrates seen on her chest x-ray. The CTA revealed peripheral, bilateral ground glass opacities with consolidation involving all five lobes of her lungs (Figure 2) and no evidence of pulmonary emboli. Such findings are commonly reported imaging features of COVID-19 pneumonia [1].

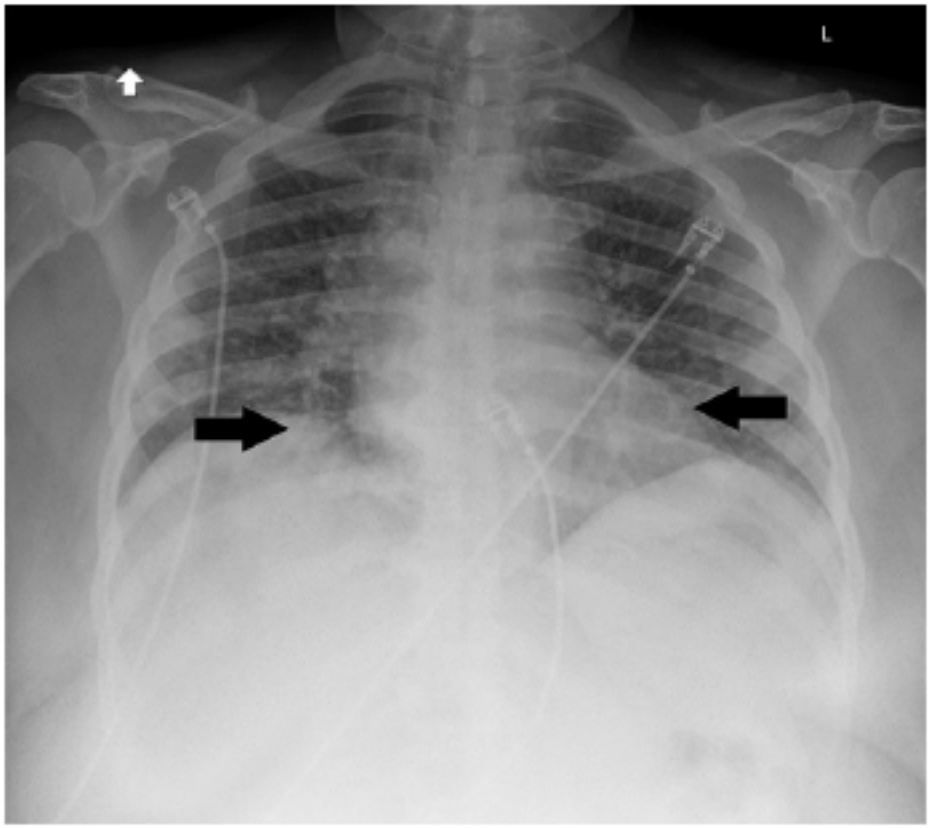

Figure 1: AP Chest X-Ray showing patchy peripheral opacities in the midlung zones and lung bases bilaterally, compatible with multifocal pneumonia.

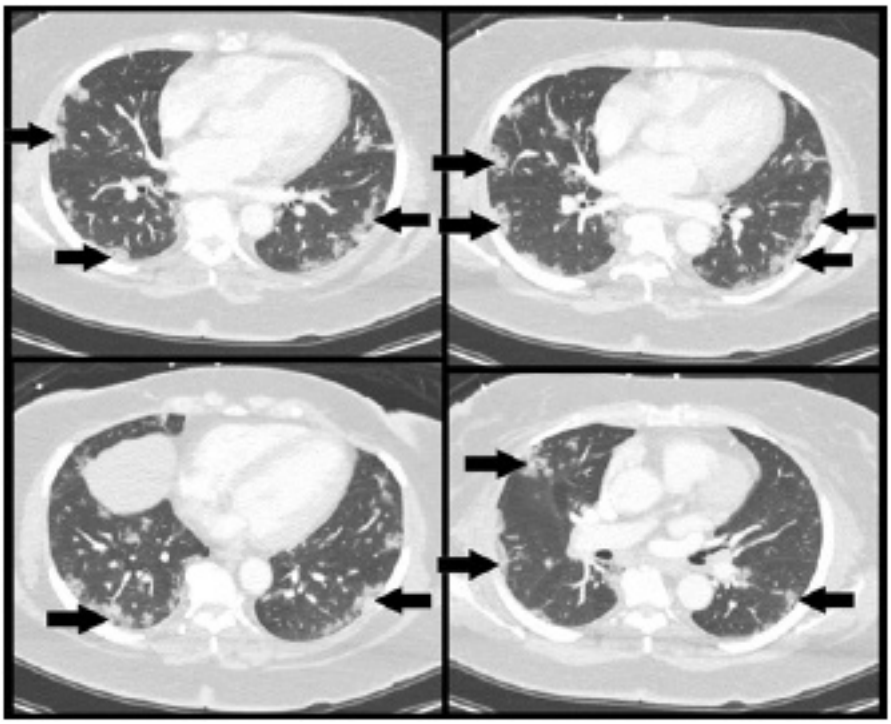

Figure 2: Axial CTA images showing peripheral, bilateral ground glass opacities with consolidation involving all 5 lobes.

The clinical features of COVID-19 can be quite variable, but most who experience moderate to severe disease exhibit somewhat classic features of viral pneumonia on chest x-ray and computed tomography including patchy, ground glass opacities. The lung changes that occur in COVID-19 pneumonia appear to be largely inflammatory and fibrotic as well as thrombotic on the microvascular level [2]. Superimposed bacterial co-infection has been reported, although preliminary data suggests that antibiotics are unwarranted and not helpful in most cases [3]. Non-contrast computed tomography (CT) can be useful in patients with inconclusive x-ray results or when the patient appears more ill than their chest x-ray suggests as they can have an occult pneumonia which would be better evaluated by CT, although certainly not all patients with COVID-19 need CT scans [4]. CTA is warranted if pulmonary embolism is clinically likely [5].

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