Radiology: Cardiothoracic Imaging

IMAGES IN CARDIOTHORACIC IMAGING

COVID-19 Complicated by Acute Pulmonary Embolism

Yuanliang Xie, MD • *Xiang Wang, MD* • *Pei Yang, MD* • *Shutong Zhang, MD*

From the SARS-CoV-2 Investigating and Research Team, Department of Radiology, Central Hospital of Wuhan, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei 430014, China. Received February 18, 2020; revision requested February 24; revision received February 25; accepted March 2. **Address correspondence to** X.W. (e-mail: *wangxiang385@aliyun.com*).

Conflicts of interest are listed at the end of this article.

Radiology: Cardiothoracic Imaging **2020; 2(2):e200067** • **https://doi.org/10.1148/ryct.2020200067** • **Content code: CH** •

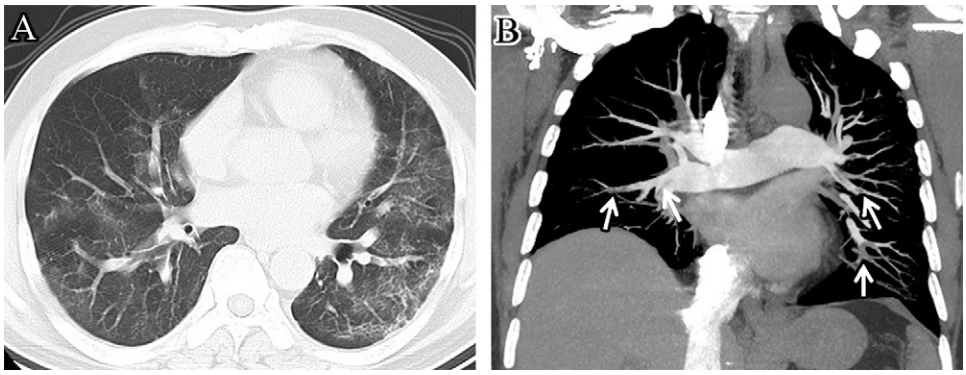

Figure 1: Images in a 57-year-old man with COVID-19 pneumonia. *A*, Axial unenhanced chest CT scan obtained on day 10 after the onset of symptoms shows bilateral areas of peripheral ground-glass opacities. *B*, Coronal thick maximum intensity projection slab of CT pulmonary angiography demonstrates multiple bilateral filling defects (white arrows) involving lobar, segmental, and subsegmental branches of the pulmonary artery.

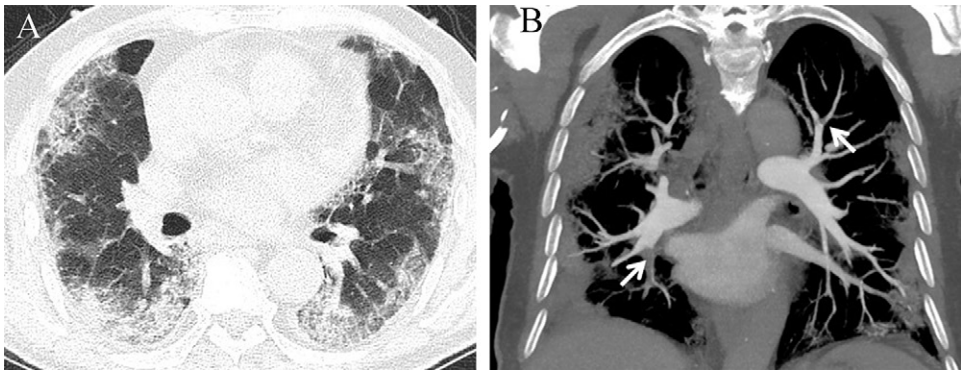

Figure 2: Images in a 70-year-old man with COVID-19 pneumonia. *A*, Axial unenhanced chest CT scan obtained on day 2 after the onset of symptoms shows bilateral areas of peripheral ground-glass opacities, associated with crazy paving and consolidation. *B*, Coronal thick maximum intensity projection slab of CT pulmonary angiography demonstrates filling defects (white arrows) in segmental and subsegmental branches of the lower lobe and left upper lobe pulmonary arteries, associated with peripheral consolidation as seen at prior unenhanced CT.

We report two cases from Wuhan, China, presenting with fever, cough, and dyspnea secondary to COVID-19 (formerly known as 2019 novel coronavirus [2019-nCoV]) pneumonia, confirmed with real-time fluorescence polymerase chain reaction test and presenting with typical findings at CT (1, 2); these cases evolved with respiratory deterioration and elevated serum D-dimer level. Figure 1 illustrates the case of a 57-year-old man admitted to the hospital for 10 days; unenhanced chest CT on day 10 from the onset of fever showed bilateral peripheral ground-glass opacities (Fig 1, *A*). CT pulmonary angiography performed on day 2 of admission helped diagnose acute pulmonary embolism (Fig 1, *B*). Figure 2 depicts the case of a 70-year-old man admitted to the hospital for 7 days; unenhanced chest CT on admission showed bilateral ground-glass opacities and consolidation in a peripheral distribution (Fig 2, *A*). CT pulmonary angiography 6 days after admission confirmed acute pulmonary embolism (Fig 2, *B*). Acute pulmonary embolism is a cause of clinical deterioration in viral pneumonias (3, 4). As patients with COVID-19 are admitted for treatment and isolation, it is important to follow prophylactic measures for avoiding venous thromboembolism. In this scenario, respiratory deterioration with other clinical evidence of venous thrombosis should raise suspicion for pulmonary embolism.

Acknowledgments: We thank all colleagues for helping us during the current study. We are also grateful to the many members of the frontline medical staff for their selfless and heroic dedication in the face of this outbreak, despite the potential threat to their own lives and the lives of their families.

Disclosures of Conflicts of Interest: Y.X. disclosed no relevant relationships. **X.W.** disclosed no relevant relationships. **P.Y.** disclosed no relevant relationships. **S.Z.** disclosed no relevant relationships.

References

1. Chung M, Bernheim A, Mei X, et al. CT imaging features of 2019 novel coronavirus (2019-nCoV). Radiology 2020 https://doi.org/10.1148/radiol.2020200230. [Epub ahead of print].
2. Lei J, Li J, Li X. CT imaging of the 2019 novel coronavirus (2019-nCoV) pneumonia. Radiology 2020 https://doi.org/10.1148/radiol.2020200236. [Epub ahead of print].
3. Jolobe OMP. Similarities between community-acquired pneumonia and pulmonary embolism. Am J Med 2019;132:e863.
4. Ishiguro T, Matsuo K, Fujii S, et al. Acute thrombotic vascular events complicating influenza-associated pneumonia. Respir Med Case Rep 2019;28:100884.