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Spontaneous coronavirus disease 2019 (COVID-19)-associated luminal aortic thrombus

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Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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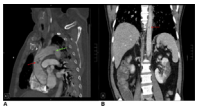

SPONTANEOUS CORONAVIRUS DISEASE 2019 (COVID-19)-ASSOCIATED LUMINAL AORTIC THROMBUS

To the Editor:

Coronavirus disease 2019 (COVID-19) has been associated with profound coagulopathies via direct and indirect mechanisms.[1] Aortic thrombus is typically identified in atherosclerotic or aneurysmal aortas and can be discovered as a rare embolic source.[2] We report 2 cases of aortic intraluminal thrombi without history of aortic disease, vasculitis, or coagulopathy.

Patient 1 was a 62-year-old male patient with hyperlipidemia who presented with diarrhea and hypoxia and was diagnosed with COVID-19 on April 28, 2020. He was supported for 72 hours then progressed to hypoxic respiratory failure requiring mechanical ventilation. His presenting laboratory work was notable for D-dimer of 1.19 mg/L (normal <0.57 mg/L) and fibrinogenemia to 728 mg/dL (normal <464 mg/dL). He was started on 160 mg of subcutaneous enoxaparin daily. His D-dimer increased to 14.87 mg/L at the time of decompensation. An emergent computed tomography (CT) scan with pulmonary–arterial-phase contrast was obtained. A large ascending intraluminal thrombus, as well as a distinct proximal descending thoracic aortic intraluminal thrombus, was found with normal aortic size and wall thickness and without calcifications (Figure 1, *A*). No echocardiographic evidence of ventricular thrombus or endocarditis was found. CT of his brain identified a large right parietal stroke. A multidisciplinary team agreed to low-dose heparin infusion, without an antiplatelet agent, and repeat CT angiography in approximately 2 weeks to ensure thrombus dissolution.

Patient 2 was a 57-year-old male patient with diabetes mellitus, hypertension, hyperlipidemia, and previous transient ischemic attack who developed fevers and myalgias and was diagnosed with COVID-19 via reverse-transcription polymerase chain reaction on April 16, 2020. Presentation studies were notable for a normal D-dimer of 0.46 mg/L. His home medications included daily aspirin, which was continued throughout his hospitalization, along with enoxaparin prophylaxis. Shortly thereafter, he was transferred to the intensive care unit for hypoxic respiratory failure requiring noninvasive positive pressure ventilation. On hospital day 9, he developed acute abdominal pain and an elevated lactate of 3.1 mmol/L. His D-dimer peaked at 29.97 mg/L the same day. An emergent CT of his abdomen and pelvis identified bilateral renal infarcts and distal

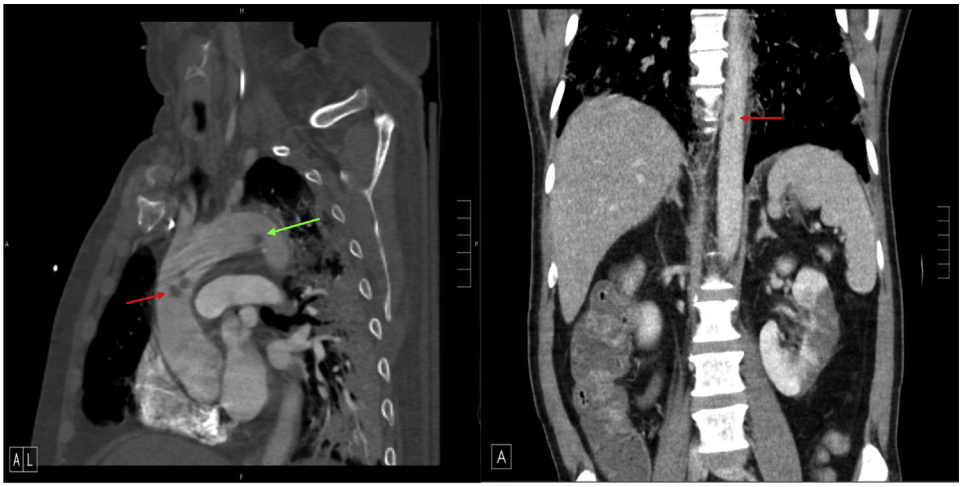

FIGURE 1. A, Ascending (*red*) and descending (*green*) aortic thrombi. B, Descending aortic thrombus.

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thoracic aortic thrombus, in an otherwise-unremarkable aorta (Figure 1, *B*). He was also started on a heparin infusion, which resulted in a return of his distal pulses.

The biologic underpinnings of COVID-19-related coagulopathy are complex,[1] and acute aortic thrombus related to COVID-19 infection has been described only once to date.[3] This severe thrombotic event can lead to catastrophic consequences, including cerebrovascular, visceral, or peripheral embolization.

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