

Bilateral spontaneous carotid artery dissection concomitant with early-stage COVID-19

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In December 2021, a previously healthy 50-year-old woman with no history of hypertension and smoking was admitted to the hospital with symptoms of acute ischemic stroke that had started 6 hours earlier. On admission, mild paresis of the upper left limb without sensory deficits was found, marked particularly in its distal part (National Institute of Health Stroke Scale [NIHSS] 1). She also reported dry cough, headache, and rhinitis lasting for 1 day. Her body temperature, blood pressure (114/75 mm Hg), and electrocardiography findings (sinus rhythm, 80 bpm) were normal. She denied any recent head or neck trauma, but reported previous hysterectomy and occasional migraine-like headaches. Family history was negative for serious cardiovascular or connective tissue diseases.

A Doppler examination showed bilateral internal carotid artery (ICA) dissection (FIGURE 1A and 1B) and neuroimaging by computed tomography (CT) revealed a small acute ischemic lesion in the right parietal lobe.

The peak C-reactive protein concentration was 14.8 mg/l (upper limit of normal [ULN], 0.5 mg/l). Complete autoimmune screening was negative. The lipid profile results were as follows: total cholesterol, 140.5 mg/dl (ULN, 190 mg/dl); high-density lipoprotein cholesterol, 56.6 mg/dl (normal range >45 mg/dl); low-density lipoprotein cholesterol, 67.1 mg/dl (ULN, 100 mg/dl); triglycerides, 84.2 mg/dl (ULN, 150 mg/dl). A routine nasopharyngeal swab test performed on admission was positive for SARS-CoV-2. Subsequent CT angiography (CTA) documented dissection of

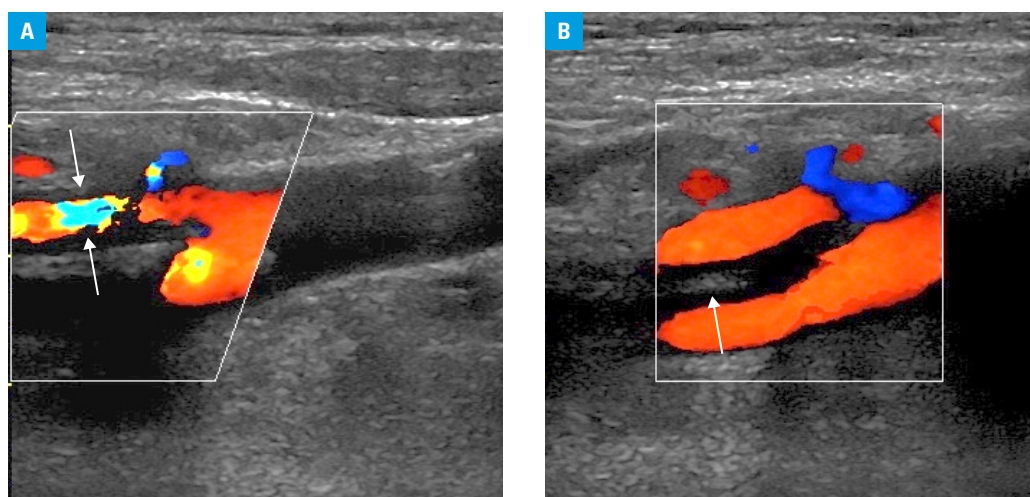


FIGURE 1 Color Doppler ultrasonography showing the right internal carotid artery (ICA) with stenosis (arrows) as a consequence of dissection (A) and the left ICA with hypoechogenic thrombosed false lumen (arrow), and no signs of stenosis (B)

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Received: August 9, 2022.
Revision accepted: August 26, 2022.
Published online: September 7, 2022.
Pol Arch Intern Med. 2022;
132 (10): 16335
doi:10.20452/pamw.16335
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to this work.

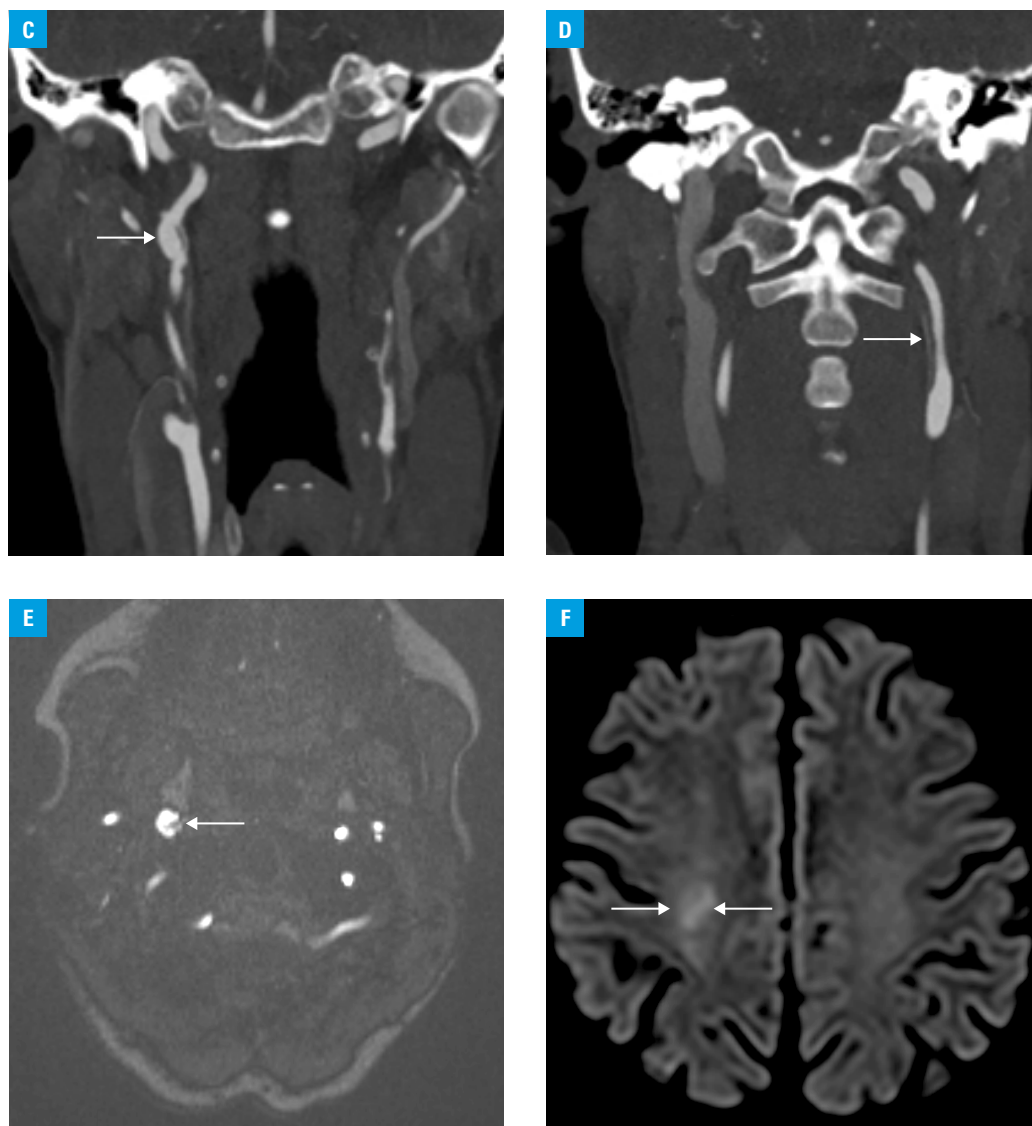


FIGURE 1 C, D – computed tomography angiography of the carotid arteries (multiplanar reconstruction) presenting the right ICA with dissection and poststenotic dilatation (C, arrow) and the left ICA with true lumen and thrombosed false channel (D, arrow); E – non-contrast-enhanced, time-of-flight magnetic resonance angiography showing the right ICA with dissected lumen (arrow); F – magnetic resonance diffusion-weighted imaging showing an ischemic lesion in the right parietal lobe (arrows)

both ICAs with intramural hematoma in the left ICA (FIGURE 1C and 1D).

Following a multidisciplinary discussion, conservative management was chosen. During the hospitalization, the patient's neurological state improved—a reduction of the left upper limb paresis was observed. She was discharged home in a good condition (NIHSS 0).

Two months later, the patient was referred for a CTA examination, and a head-to-pelvis imaging study revealed neither fibromuscular dysplasia (as underlying arteriopathy) nor other arterial dissections.¹ Magnetic resonance imaging showed partial remission of the vascular wall injury on both ICAs and revealed remnants of recent cerebral ischemia as documented by moderate hyperintensity in diffusion-weighted imaging (FIGURE 1E and 1F). The results of 24-hour ambulatory blood pressure monitoring were normal.

The final diagnosis was spontaneous bilateral ICA dissection with right-sided ischemic stroke associated with an early stage of mild SARS-CoV-2 infection. Other predisposing factors may have included the winter season and migraine-like headaches.²

An association of spontaneous artery dissection with COVID-19 has been reported previously, including recent cases of dissections involving the coronary arteries and the aorta.³ Until recently, reports on dissections in other vascular beds have been scant. Our case confirms that in susceptible patients an ICA dissection also may be associated with SARS-CoV-2 infection, even at the early stage of mildly symptomatic COVID-19.⁴

ARTICLE INFORMATION

ACKNOWLEDGMENTS The authors would like to thank Andrzej Januszewicz, Marta Skowrońska, Barbara Miłoś, Piotr Dobrowolski, and Alekander Prejbisz for their expertise and assistance with this publication.

FUNDING The study was supported by National Institute of Cardiology (4.59/VII/21)

CONFLICT OF INTEREST None declared.

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HOW TO CITE Śpiewak M, Grabska-Radzikowska K, Michałowska I, et al. Bilateral spontaneous carotid artery dissection concomitant with early-stage COVID-19. *Pol Arch Intern Med.* 2022; 132: 16335. doi:10.20452/pamw.16335

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