Carotid Artery Stenosis in a Young Asymptomatic Patient

The Value of Multimodal Cross-Sectional Imaging

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Figure Carotid Ultrasound, CT Angiography (CTA), MRI, and Stained Sections

(A) Carotid ultrasound with >70% stenosis. (B) Axial and (C) sagittal CTA with 1.5 mm lumen (white arrows); contrast filling within ulcerated plaque (blue arrows). (D) Axial MRI noncontrast double inversion recovery T1-weighted image with intrinsic, hyperintense T1 signal within the vessel wall (white arrow). (E) Double inversion recovery axial T1 with avid enhancement in this region (white arrow). (F) Hematoxylin & eosin stain with calcification and cholesterol crystals (blue arrow) with $\times 20$ magnification. (G) Hemosiderin-laden macrophages (blue arrows) with $\times 40$ magnification.

A 56-year-old right-handed patient presented with asymptomatic >70% left internal carotid artery (ICA) stenosis on ultrasound. The peak systolic and end diastolic velocities were 237 and 51 cm/s for an ICA/common carotid artery ratio of 2.8. CT angiography demonstrated 70% ICA stenosis with dissection/ulcerated plaque. Magnetic resonance angiography with vessel wall imaging demonstrated 70% stenosis with enhancing hemorrhagic ulcerated plaque. The patient underwent endarterectomy. Pathology demonstrated calcifications with cholesterol crystals and hemosiderin-laden macrophages (figure).

We present a case illustrating the value of additional imaging studies including visualization of vulnerable features including intraplaque hemorrhage, a predictor of stroke.¹

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Disclosure

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org/N](https://www.neurology.org/N) for full disclosures.

Reference

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