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**Carotid Artery Stenosis in a Young Asymptomatic Patient: The Value of Multimodal
Cross-sectional Imaging**

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Case report

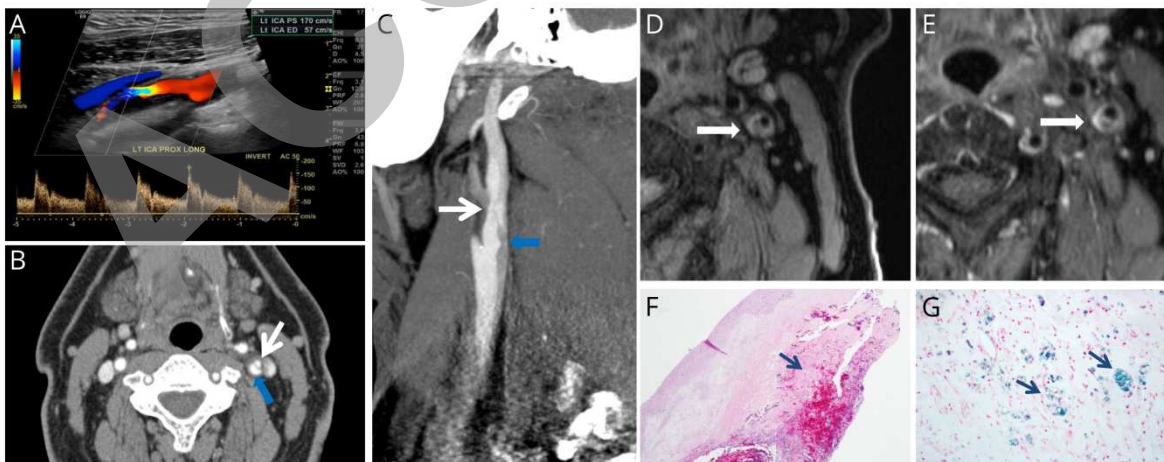
A 56-year-old right-handed patient presented with asymptomatic >70% left internal carotid artery (ICA) stenosis on ultrasound. The peak systolic and end diastolic velocities were 237cm/s and 51cm/s for an ICA/common carotid artery ratio of 2.8. Computed tomography angiography demonstrated 70% ICA stenosis 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 1**).

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

REFERENCES:

1. Howard DP, van Lammeren GW, Rothwell PM, et al. Symptomatic carotid atherosclerotic disease: correlations between plaque composition and ipsilateral stroke risk. *Stroke*. 2015;46(1):182-189.

Figure 1. A) Carotid ultrasound with >70% stenosis; B) Axial and C) sagittal CTA with 1.5 mm lumen (white arrow). Contrast filling within ulcerated plaque (blue arrow); D) Axial MR non-contrast 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) H&E stain with calcification, cholesterol crystals (blue arrow) with 20X magnification and; G) Hemosiderin laden macrophages (blue arrows) with 40X magnification



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