Intracranial high-resolution vessel wall imaging in CADASIL

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Neurology® 2020;94:1040-1041. doi:10.1212/WNL.0000000000009588

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Figure 1 Intracranial vessel wall MRI of cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy

Top row showing T1 precontrast axial images compared with bottom row showing T1 postcontrast mural enhancement of the subcortical and leptomeningeal arteries. Note cortical venous mural enhancement in the bottom right pane. Arrows indicate intramural enhancement.

A 64-year-old man with cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) (heterozygous, c.544C>T; p.Arg182Cys) underwent an intracranial high-resolution black-blood protocol vessel wall MRI (vwMRI). Intramural patchy gadolinium enhancement in the subcortical and leptomeningeal arteries and veins was noted, consistent with the histopathologic findings of CADASIL (figures 1 and 2).^{1,2} We hypothesize that vwMRI allowed for an in vivo view of the vasculopathy intrinsic to CADASIL. Pending investigation of larger cohorts, this imaging technique may provide a novel mechanism for understanding CADASIL progression and pathogenesis, as well as potentially serving as

Figure 2 Baseline white matter burden

Axial fluid-attenuated inversion recovery sequences show T2 subcortical white matter hyperintensities consistent with cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy. Images provided for comparison.

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a biomarker in future disease modification trials and aiding in the differential diagnosis for interpreting clinicians.

Study funding

No targeted funding reported.

Disclosure

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

Appendix Authors

Name	Location	Contribution
Eric D. Goldstein, MD	University of Utah, Salt Lake City	Design and conceptualization, drafted manuscript for intellectual content

Appendix (continued)

Name	Location	Contribution
Jennifer J. Majersik, MD, MS	University of Utah, Salt Lake City	Drafting and revision of manuscript for intellectual content
Scott McNally, MD, PhD	University of Utah, Salt Lake City	Drafting and revision of manuscript for intellectual content

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Neurology 2020;94:1040-1041 Published Online before print May 19, 2020

DOI 10.1212/WNL.0000000000009588

This information is current as of May 19, 2020

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