

# Teaching NeuroImages: Vertebral artery atlas loop dissection in 3D T1 MRI multiplanar reconstruction

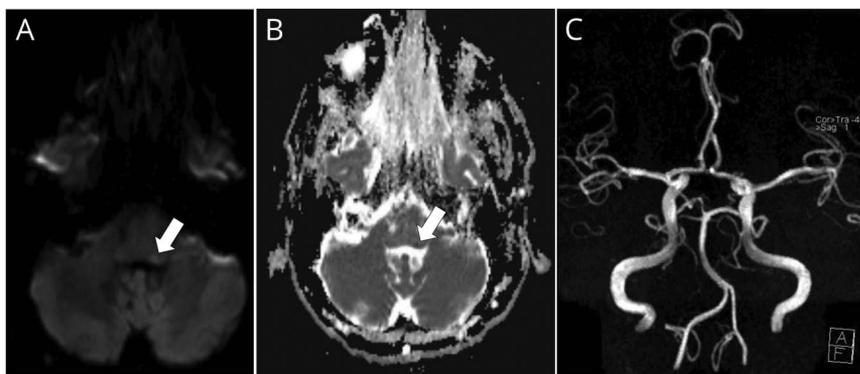
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**Figure 1** Left dorsolateral medullary stroke



(A) Diffusion-weighted MRI shows a dorsolateral medullary infarct (arrow). (B) Apparent diffusion coefficient map confirms true diffusion restriction (arrow). (C) Time-of-flight magnetic resonance angiography without visible vascular pathology. V2 and V3 segments of vertebral arteries not covered in imaged volume.

A 38-year-old woman presented with left-sided ataxia and a minor ischemic lesion of the left dorsolateral medulla was found on brain MRI. Magnetic resonance angiography was unremarkable (figure 1, A–C). A 3D fat-saturated black-blood 3T T1-weighted sequence (sampling perfection with application-optimized contrast using different flip-angle evolutions [SPACE]) revealed a mural hematoma of the V3 left vertebral artery segment, along the atlas loop (figure 2, A–C, arrows). The excellent volume coverage and mural/luminal distinction characteristics of the SPACE sequence<sup>1</sup> allowed the clear depiction of vertebral artery dissection and consequent luminal stenosis, highlighting the need for high-resolution vertebral arteries imaging, particularly in young adult stroke patients.<sup>2</sup>

## Author contributions

Georgios Tsivgoulis: data collection, study design, drafting and revising the manuscript. Georgios N. Papadimitropoulos: drafting and revising the manuscript. Stefanos Lachanis: data collection, critical comments during manuscript revision. Lina Palaiodimou: data collection, critical comments during manuscript revision. Christina Zompola: data collection, critical comments during manuscript revision. Paschalis Zervas: data collection, critical comments during manuscript revision. Konstantinos Voumvourakis: critical comments during manuscript revision.

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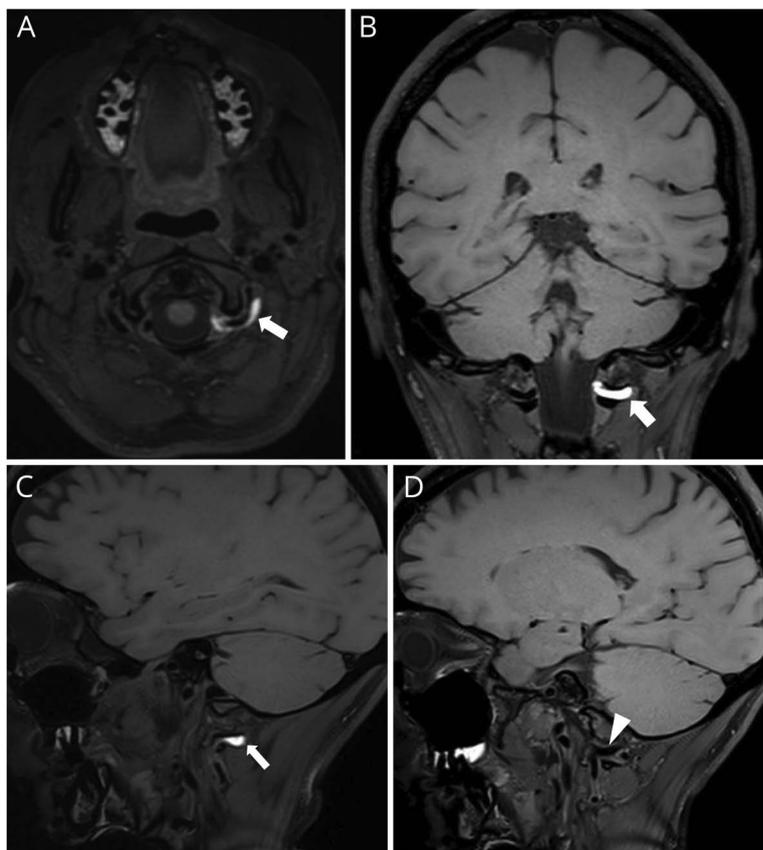
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**Figure 2** Left vertebral artery V3 segment dissection on T1 sampling perfection with application-optimized contrast using different flip-angle evolutions MRI at 3T



Multiplanar reconstruction. High-intensity signal represents subacute intramural hematoma (A–C, arrows) along V3 segment of left vertebral artery. Hematoma visibly restricts vertebral artery lumen diameter. Compare unaffected contralateral lumen diameter (e.g., D, arrowhead). (A) Axial plane. (B) Coronal plane. (C) Left parasagittal plane. (D) Right parasagittal plane.

### Disclosure

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

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