



Crab Sign in Bilateral Extracranial Vertebral Artery Dissection

Nils Peters^{a,b}

Stefan T Engelter^{a,b}

^aDepartment of Neurology and Stroke Center, University Hospital Basel, Basel, Switzerland

^bNeurorehabilitation Unit and University Center for Medicine of Aging and Rehabilitation, Felix Platter Hospital Basel, University of Basel, Basel, Switzerland

Dear Editor,

Arterial dissection is an important cause of stroke in young adults.^{1,2} Herein we present a case of nontraumatic bilateral dissection of the vertebral artery in a young woman, in which a striking imaging finding was observed.

A 35-year-old woman experienced sudden-onset dizziness, nausea, and gait imbalance 3 days prior to admission, which followed approximately 10 days of nuchal pain. There was no history of trauma of any kind and the patient was otherwise healthy. A neurological examination revealed gait ataxia and subtle limb ataxia on the right side. Diffusion-weighted magnetic resonance imaging (MRI) showed bilateral cerebellar infarction within the territory of the posterior inferior cerebellar artery, with the infarct being larger on the right side (Fig. 1A). Contrast-enhanced magnetic resonance (MR) angiography showed irregularities of the distal vertebral arteries with focal narrowing of the vessels (Fig. 1B). These alterations of the arteries were more pronounced on the right side. In accordance with this MR finding, duplex sonography of the distal vertebral arteries (V3 segments) revealed intramural hematoma, suggestive of arterial dissection, leading to luminal narrowing and a consequential increase in flow velocity up to 1.7 m/s systolically, which again was more pronounced on the right side (Fig. 1C, arrows). Axial T1-weighted fat-saturated MRI eventually confirmed bilateral dissection of the distal extracranial vertebral arteries (Fig. 1D). The findings of a diagnostic workup that included ultrasound of the renal arteries were otherwise unremarkable. Secondary prevention with oral anticoagulation (vitamin-K antagonist) was started. The gait and limb ataxia of the patient improved rapidly during the hospitalization, and she was discharged to her home 9 days later. At 6- and 12-month follow-ups the patient was asymptomatic without any focal neurological deficits. Duplex sonography of the vertebral arteries was unremarkable, with normal blood flow velocities and without residual detection of intramural hematoma. Secondary prevention was stopped after 12 months.

Arterial dissection is an important cause of stroke in young adults.^{1,2} Besides clinical parameters and the medical history, the diagnosis is based on T1-weighted fat-saturated MRI with detection of intramural hematoma associated with dissection.^{1,2} Our case illustrates the striking resemblance of axial images in bilateral vertebral artery dissection with the frontal view of a common blue crab (Fig. 1E). By analogy with the “puppy sign” observed in internal carotid artery dissection,³ this “crab sign” may facilitate the rapid imaging-based diagnosis of vertebral artery dissection.

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Correspondence

Nils Peters, MD
Department of Neurology and Stroke Center,
University Hospital Basel,
Petersgraben 4, CH-4031 Basel,
Switzerland

Tel +41 (0)61 265 25 25

Fax +41 (0)61 265 44 91

E-mail nils.peters@usb.ch

Conflicts of Interest

The authors have no financial conflicts of interest.

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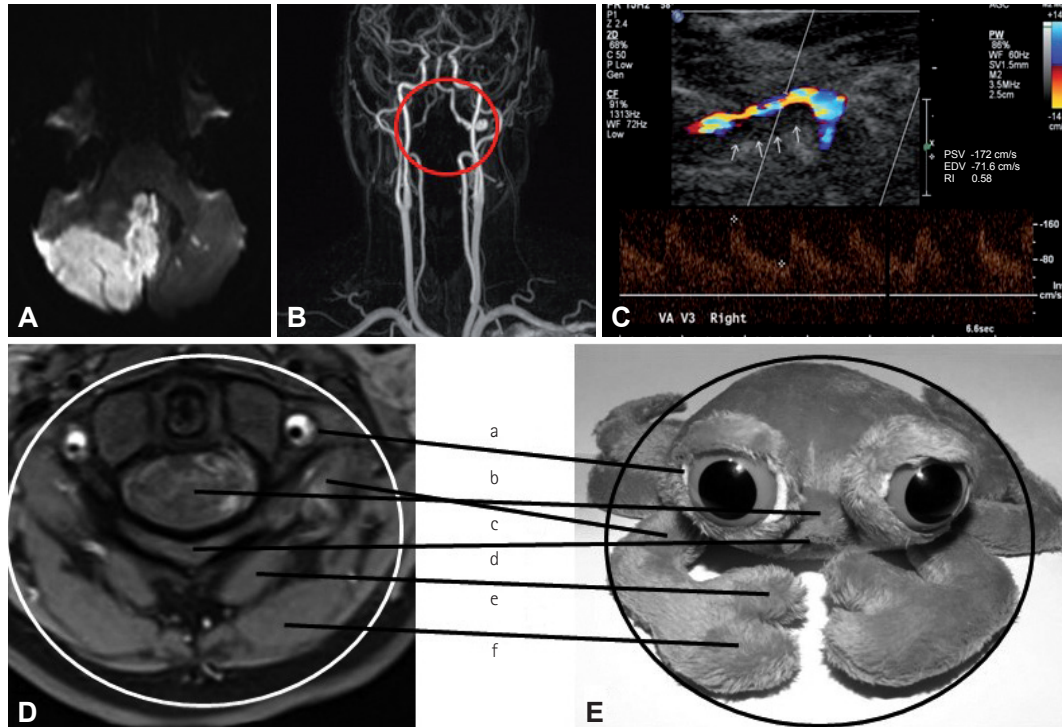


Fig. 1. Crab sign in vertebral artery dissection. Diffusion-weighted MRI shows bilateral acute ischemic cerebellar infarction that is larger on the right side (A). Contrast-enhanced magnetic resonance angiography shows irregularities with narrowing of both distal vertebral arteries, more pronounced on the right side (B, red circle). Consistent with this, duplex sonography of the V3 segments of the vertebral arteries reveals an intramural hematoma (arrows) with luminal narrowing and consequential increase in flow velocity (PSV), which again is more pronounced on the right side (C). Axial T1-weighted fat-saturated MRI (D) confirms bilateral dissection of the distal extracranial vertebral arteries with an intramural hematoma, which strikingly resembles a crab as follows (E). a: dissected vertebral artery=eyes, b: upper cervical spinal cord=rostrum (carapace), c: obliquus capitis inferior muscle=propodus, d: posterior arch of atlas=mouth, e: rectus capitis posterior major muscle=fixed finger of cheliped, f: semispinalis capitis muscle=dactyl of cheliped. EDV: end diastolic velocity, MRI: magnetic resonance imaging, PSV: peak systolic velocity, RI: resistive index.

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