Teaching NeuroImages:

Traumatic vertebral arteriovenous fistula

Brendon P. Boot, MBBS
Jason H.M. Macdonald,
FRCR
Geoffrey D. Parker,
FRANZCR
Stacey Jankelowitz, PhD

Address correspondence and
reprint requests to Dr. Stacey
Jankelowitz, Central Clinical
School, University of Sydney, and
Department of Neurology, Royal
Prince Alfred Hospital,
Camperdown, NSW 2050,
Australia
stacey.jankelowitz@sydney.edu.au

Figure 1 MRI fluid attenuation inversion recovery images

There is swelling and hyperintensity of the medulla and cervical cord (A) and engorged left cervical epidural veins (B, white arrowheads). Six weeks after endovascular occlusion of the fistula, the findings had resolved (C, D).

A 36-year-old man was stabbed in the neck. His left occipital artery was repaired. Ten years later, he noticed a left ear bruit and experienced intermittent paresthesias in the left trigeminal and C5 distributions and bilaterally below the knees. He had a 3-day episode of generalized incoordination. Examination revealed a pulsatile mass and loud bruit below the left occiput with mild weakness and decreased reflexes in the left arm.

MRI (figure 1) and angiography (figure 2) revealed brainstem and cervical cord hyperintensity due to a high-flow vertebrovertebral arteriovenous

fistula.¹ His symptoms and MRI changes probably reflected venous hypertension: 6 weeks after endovascular occlusion they had resolved, and there was no fistula recurrence on repeat angiography.²

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From the Department of Neurology (B.P.B.), Mayo Clinic, Rochester, MN; and Departments of Radiology (J.H.M.M., G.D.P.) and Neurology (S.J.), Royal Prince Alfred Hospital, Sydney, Australia.

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The fistula draining veins (A, B, white arrowheads) drew all flow from the left vertebral artery (LVA) (A). Most of the right vertebral artery flow (RVA) (B) and significant bilateral carotid flow (not shown) also drained to the fistula via retrograde flow in the distal LVA. There was resolution after endovascular occlusion (Coil) (C, D).

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