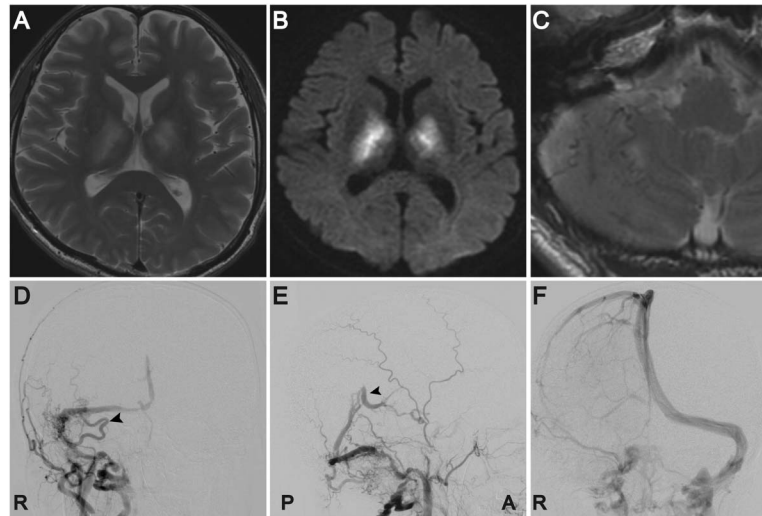


# Teaching NeuroImages: Reversible cognitive impairment with bithalamic lesions caused by a dural arteriovenous fistula

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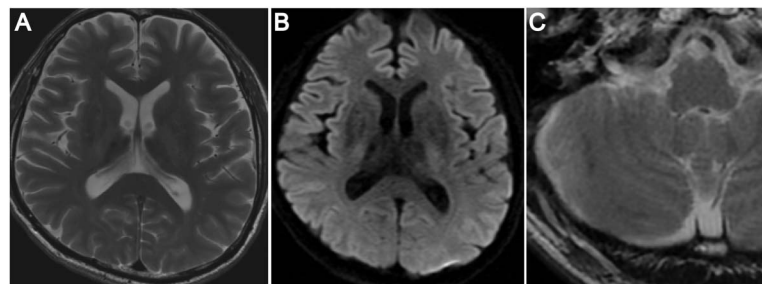
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**Figure 1** Brain MRI and angiography of the right carotid artery before treatment



Brain MRI on T2-weighted (A, C) and diffusion-weighted (B) images. Right external carotid angiogram shows feeding arteries from the occipital artery to the transverse-sigmoid sinuses (D, arrow) with filling into the vein of Galen (E, arrow). Right internal carotid angiogram shows the superior sagittal sinus draining into only the left transverse sinus (F).

**Figure 2** Brain MRI after treatment



Brain MRI on T2-weighted (A, C) and diffusion-weighted (B) images.

A 54-year-old man developed apathy and memory impairment in 3 months. MRI showed bilateral thalamic hyperintensities with dilated cortical veins in the right cerebellum. Angiography revealed dural arteriovenous fistula (dAVF) at right transverse-sigmoid sinuses with retrograde flow through the vein of Galen (figure 1). Transvenous coil embolization improved his MRI findings (figure 2) and Wechsler

Memory Scale–Revised scores from 55 at baseline to 105 in the delayed recall index.

dAVF is a rare cause of bithalamic lesions<sup>1</sup> and cognitive impairment. His bithalamic venous congestion was caused by unilateral transverse-sigmoid dAVF due to noncommunication between the right and left transverse sinuses as anatomical variation.<sup>2</sup>

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## AUTHOR CONTRIBUTIONS

E. Iwasawa: drafting/revising the manuscript, study concept or design, acquisition of data, analysis or interpretation of data. S. Ishibashi: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, study supervision. K. Miki and Y. Yoshino: treating physicians of the patient, study concept or design. S. Nemoto: treating physician of the patient, study supervision. H. Mizusawa: study supervision.

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## DISCLOSURE

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