Infratentorial dural arteriovenous fistula resulting in brainstem edema and enhancement

Figure 1 MRI at presentation

(A) T2-weighted image with hyperintensities in the brainstem and cerebellum (open arrows). (B) Sagittal fluid-attenuated inversion recovery shows swelling of cerebellar tonsil and hyperintensity (asterisk). (C) After gadolinium contrast, there is inhomogeneous enhancement of the hyperintense T2 areas (arrowhead). (D) Infratentorial extra-axial prominent vessels (arrow) are seen.

A 65-year-old man presented with a 2-year history of progressive eye movement abnormalities, bilateral limb weakness, and gait instability. MRI (figure 1) showed T2 hyperintensities in brainstem and cerebellum with enhancement, which were initially diagnosed as tumor. Closer inspection revealed prominent vascular structures at the tentorium. Digital subtraction angiography (DSA) showed an infratentorial dural arteriovenous fistula (DAVF) (figure 2). Following embolization with glue, the bilateral limb weakness improved and the other symptoms had resolved at discharge the next day.

Although DAVFs rarely have infratentorial localization, if MRI raises suspicion for it, DSA is the gold standard for diagnosis.^{1,2}

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Figure 2 Imaging before and after treatment

(A) Digital subtraction angiography of left vertebral artery with hypertrophic posterior meningeal artery (arrow) and early venous filling of cerebellar veins (asterisk) in (B). (C) N-butyl-2-cyanoacrylate glue cast (open arrow) after embolization. (D) Limited filling of posterior meningeal artery (arrowhead) and no residual shunting to venous structures in parenchymal phase after embolization.

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