Teaching *NeuroImages*: Artery of Percheron thrombosis causing selective downgaze palsy

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Figure 1 Cardinal positions of gaze at presentation demonstrate the isolated downgaze palsy

A 47-year-old man with migraines presented with sudden onset of vertical diplopia, dysarthria, right facial weakness, and downgaze palsy (figure 1). Brain MRI revealed ischemic strokes in the midbrain periaqueductal gray, bilateral thalamic–midbrain junction, and thalamus (figure 2, A–C). Gradient echo and T1 MRI showed hypointensity in the interpeduncular fossa (figure 2, D and E). No flow could be visualized in this structure on CT angiogram or catheter angiogram, demonstrating a thrombosed artery of Percheron (figure 2, F–H). Downgaze palsy, which improved 18 months later, may result from bilateral lesions of the mesencephalic–diencephalic junction involving the rostral interstitial nucleus of the medial longitudinal fasciculus.^{1,2}

AUTHOR CONTRIBUTIONS

Dr. Sechler: study concept and design, acquisition of data, analysis and interpretation. Dr. Singh: acquisition of data, analysis and interpretation, critical revision of the manuscript for important intellectual content.

Dr. El Husseini: study concept and design, acquisition of data, analysis and interpretation, critical revision of the manuscript for important intellectual content, study supervision.

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(A–C) MRI diffusion-weighted imaging shows restricted diffusion in the midbrain, thalamic–midbrain junction, and left thalamus. (D) Gradient echo MRI shows blooming artifact in the interpeduncular fossa concerning for a thrombus. (E) Contrasted T1 MRI shows filling defect in a posteriorly directed linear midline vascular structure. (F) CTA (axial) shows filling defect in the proximal artery of Percheron. (G) CTA (coronal) shows patent basilar apex with no aneurysm or vascular malformation. (H) Catheter angiogram shows no flow in the midline vessel concerning for artery of Percheron thrombosis.

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