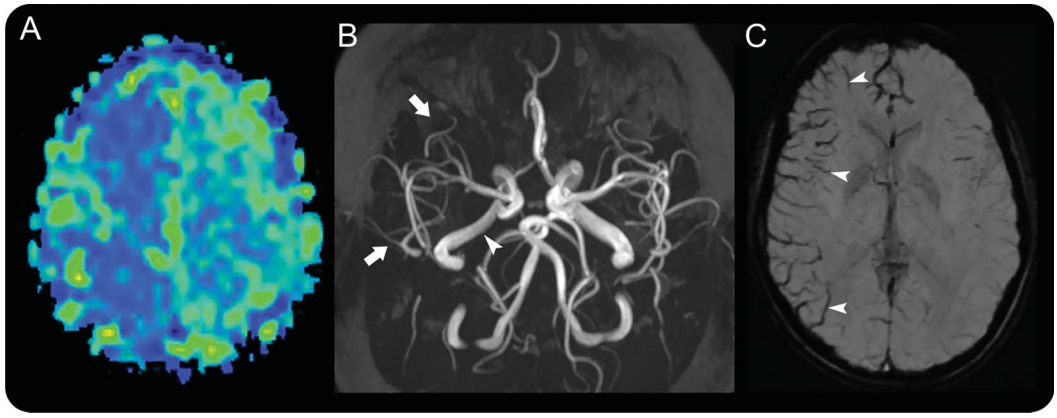
Susceptibility-weighted imaging in Todd paralysis

Figure MRI manifestations of hemispheric hypoperfusion in a patient with Todd paralysis



Arterial spin labeling (A) shows marked hypoperfusion in the right cerebral hemisphere. There is decreased caliber of the right internal carotid artery (B, arrowhead) and paucity of right middle cerebral artery branches (B, arrows) on magnetic resonance angiography. Susceptibility-weighted imaging shows prominent hypointensity within right-sided cortical draining veins (C, arrowheads).

A 10-year-old boy presented with left hemiplegia and facial droop after prolonged seizure activity overnight. MRI showed hypoperfusion involving the right cerebral hemisphere. Susceptibility-weighted imaging (SWI) demonstrated prominence of ipsilateral draining veins, indicating increased deoxyhemoglobin content within the hypoperfused territory (figure).[1] There was no acute infarct. Weakness improved over several hours and the patient was discharged after returning to baseline. While the pathophysiology of Todd paralysis remains elusive, prior reports have documented reversible hypoperfusion.[2] SWI is a robust and relatively novel imaging technique that is highly sensitive to deoxyhemoglobin and can be an adjunct in the evaluation of perfusion abnormalities.

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1. Mittal S, Wu Z, Neelavalli J, Haacke EM. Susceptibility-weighted imaging: technical aspects and clinical applications, part 2. AJNR Am J Neuroradiol 2009;30:232–252.
2. Rupprecht S, Schwab M, Fitzek C, Witte OW, Terborg C, Hagemann G. Hemispheric hypoperfusion in postictal paresis mimics early brain ischemia. Epilepsy Res 2010;89:355–359.

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