Perivascular and Subarachnoid Fluid-Attenuated Inversion Recovery Hyperintensities Related to Delayed Gadolinium Leakage After Stroke

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A 74-year-old man presented with right watershed infarction (initial gadolinium-injected MRI, Figure). Renal function was normal. MRI four hours later showed ipsilateral perivascular spaces (PVS) and subarachnoid FLAIR hyperintensities, probably related to stroke-associated delayed gadolinium leakage (Figure). MRI after 10 days showed complete resolution of subarachnoid/perivascular abnormalities (Figure).

Stroke-related subarachnoid and ocular gadolinium leakage on FLAIR probably represents blood-brain/ocular-barrier disruption.1,2,e1 An earlier report described PVS gadolinium
leakage on MRI performed >1 month after stroke. The glymphatic system (playing a role in CSF-interstitial fluid interchange) may be involved in stroke-related blood-brain-barrier leakage observed in the subarachnoid space and PVS.

References:


Figure Legend:

Initial MRI (gadolinium-injected for MRA) showing right-sided infarction (A, DWI) and PVS (B, T1-weighted imaging; C, FLAIR). Four hours later, MRI showed ipsilateral subarachnoid (arrows) and deep and subcortical PVS (arrowheads) gadolinium leakage seen as FLAIR hyperintensities (D-F). Complete resolution of subarachnoid/perivascular FLAIR abnormalities was observed 10 days later (G-I).
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