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MR choroid plexus sign of iron overload

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A 7-year-old boy with Diamond–Blackfan anemia was transfusion-dependent at age 4, at which point hemochromatosis progressed. Laboratory studies showed the following: iron 292 $\mu\text{g/dL}$ (normal, 70 to 190 $\mu\text{g/dL}$), unsaturated iron binding capacity 29 $\mu\text{g/dL}$ (normal, 130 to 370 $\mu\text{g/dL}$), and ferritin 6403 ng/mL (normal, 26.0 to 250.0 ng/mL). A brain MR study indicated the restricted accumulation of iron in the choroid plexus (figure). CT demonstrated no calcification on the choroid plexus. These findings are compatible with neuropathologic examination of a patient with hemochromatosis.¹

According to the autoradiographic distribution in the adult rat brain, the choroid plexus showed the highest uptake level of ⁵⁹Fe from the blood.² Thus, the choroid plexus might protect the brain from iron overloading through a buffering effect.

MRI, especially T2*-weighted imaging, effectively detects iron overloading because of a striking reduction of T2 relaxation time. Further investigations by using T2*-weighted imaging are necessary in patients with various causes of iron overload including primary hemochromatosis and acute iron intoxication.

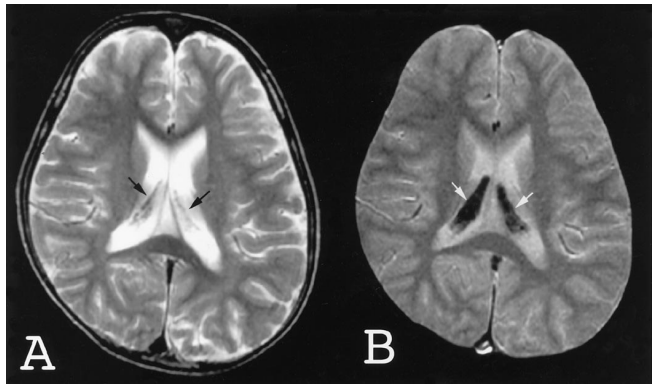


Figure. (A) Axial T2-weighted MRI shows decreased signal intensity over the bilateral choroid plexus (arrows). (B) A corresponding T2-weighted image reveals more decreased and widespread signal intensity (arrows). The choroid plexus appeared normal on T1-weighted imaging and CT scanning.*

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