Teaching Video NeuroImage: Reversible Parkinsonism Caused by Lumboperitoneal Shunt Overdrainage

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Figure 1 Brain MRI

Initial axial T2-weighted imaging (A) and sagittal T1-weighted imaging (B) show marked midbrain compression (dashed arrows), brainstem sagging (arrowhead), inferior drooping of the splenium (arrow), narrowing of the fourth ventricle (yellow arrowhead), and cerebellar tonsillar herniation (yellow arrow). (C, D) After shunt pressure adjustment, structures around the brain stem recovered.

Case

A 51-year-old woman presented with apraxia of eyelid opening, followed by slowly progressive masked facies, tongue tremor, dysphagia, neck and upper extremity rigidity, and bradykinesia 6 months after lumboperitoneal shunt placement for hydrocephalus after subarachnoid hemorrhage. An MRI examination of the brain showed midbrain compression,
brainstem displacement inferiorly, and cistern effacement, consistent with infratentorial hypotension. $^{123}$I-ioflupane SPECT imaging showed reduced striatal dopamine transporter binding bilaterally. All symptoms and findings ameliorated after increasing shunt pressure (Figures 1 and 2 and Video 1). UPDRS Part III score improved from 24 to 5.

Intracranial hypotension with midbrain sagging can cause reversible parkinsonism when displacement shear forces impair the nigrostriatal dopamine pathway.

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