

Teaching Video NeuroImages: Vertical one-and-a-half syndrome

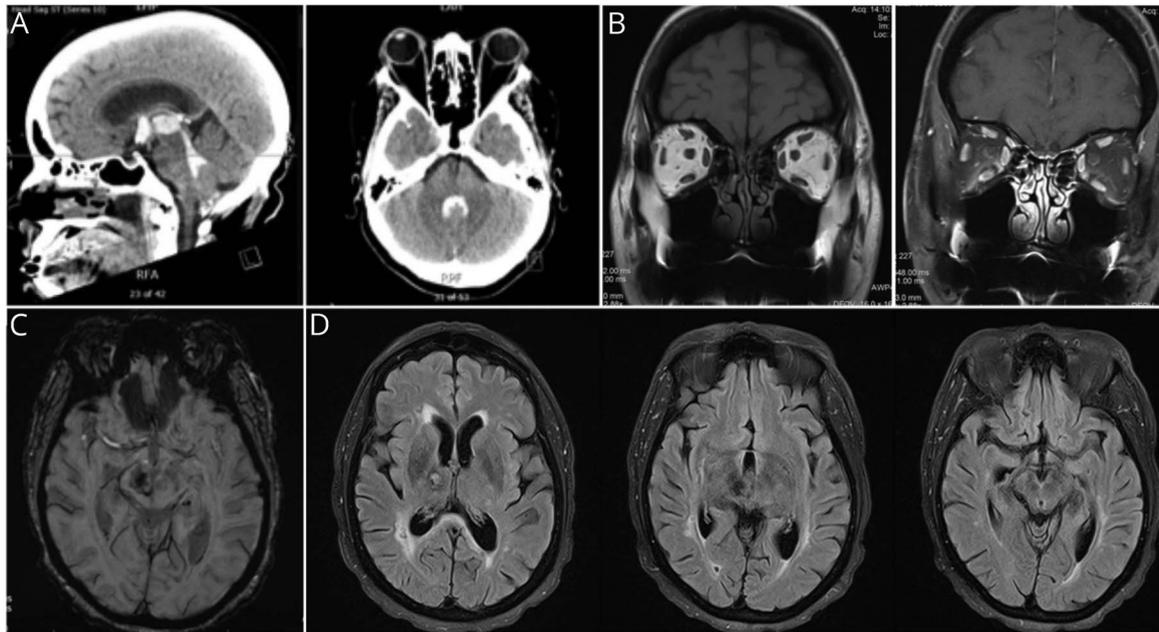
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Figure Right thalamomesencephalic stroke causing vertical one-and-a-half syndrome



(A) Sagittal (left) and axial (right) CT images show acute intraventricular, intrathalamic, and mesencephalic hemorrhage. (B) Coronal MRI slices show normal orbits (left: T1-weighted, right: T1-weighted fat-saturated postcontrast). (C) Susceptibility-weighted axial slice shows hemosiderin deposition and (D) T2-weighted fluid-attenuated inversion recovery images show volume loss in the right thalamus and midbrain months after the acute insult.

A 51-year-old woman with history of hypertension presented with left-sided weakness and diplopia. Imaging revealed a large hemorrhagic infarct involving the right thalamus and rostral midbrain with intraventricular extension (figure). Neuro-ophthalmic examination demonstrated bilateral upgaze palsy with limitation of infraduction on the right (video 1), overcome with a doll's head maneuver (video 2). Bilateral lid retraction was present with markedly reduced convergence along with convergence-retraction nystagmus. Vertical one-and-a-half syndrome is an uncommon presentation resulting from a unilateral thalamomesencephalic stroke with involvement of the rostral interstitial nucleus of the medial longitudinal fasciculus and posterior commissure¹ and was accompanied here by dorsal midbrain syndrome.

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Disclosure

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Appendix Authors

| Name | Location | Role | Contribution |
|---------------------------------|---------------------------------------|--------|-------------------------|
| Laura Donaldson, MD, PhD | McMaster University, Hamilton, Canada | Author | Prepared the manuscript |

Appendix *(continued)*

| Name | Location | Role | Contribution |
|----------------------------|-------------------------------|----------------------|---|
| Edward Margolin, MD | University of Toronto, Canada | Corresponding author | Revised the manuscript for intellectual content |

Reference

1. Bogousslavsky J, Regli F. Upgaze palsy and monocular paresis of downward gaze from ipsilateral thalamo-mesencephalic infarction: a vertical "one-and-a-half" syndrome. *J Neurol* 1984;231:43–45.

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