

The Artery of Percheron: The Stroke Easily Missed

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Abstract

Bilateral paramedian thalamic infarction can follow occlusion of a single variant perforating artery arising from the posterior cerebral circulation: the artery of Percheron. Because the presentation can include altered alertness, memory disturbance, eye-movement abnormalities and sometimes unusual behavior, the syndrome can initially be mistaken for a diffuse toxic, psychiatric or epileptic process.

The Clinical Question and Its Context

The thalamus participates in ascending arousal networks, memory circuitry and sensorimotor integration. Symmetric injury can therefore produce a perplexing syndrome without a dramatic unilateral cortical deficit. Standard noncontrast CT may be unrevealing early. MRI diffusion-weighted imaging is often more informative, although interpretation requires attention to timing and artifacts. Conventional large-vessel angiography frequently cannot directly show a tiny perforating artery.

Proposed Biological or Explanatory Model

This case illustrates why symptom-based reassurance can be hazardous. A patient with unexplained somnolence, confusion, vertical gaze palsy or fluctuating consciousness after an abrupt event warrants serious consideration of posterior circulation ischemia, among other emergencies. The occlusion may already have occurred even if no large visible thrombus appears on CTA. Diagnostic reasoning should combine time course, examination and lesion-specific imaging.

Mechanism-Specific Interpretation

The published imaging series describes several patterns of bilateral paramedian thalamic infarction with and without rostral midbrain involvement. These variants explain why the bedside phenotype is not uniform: some patients present chiefly with impaired alertness, others with ocular motor findings or memory disturbance. Diagnostic delay can be aggravated when a patient is considered intoxicated, postictal or psychiatrically disturbed before posterior circulation ischemia is considered. The disease is rare, however, and broad emergency differential diagnosis still includes metabolic and venous causes. The best lesson is pattern recognition combined with disciplined exclusion, not fixation on a dramatic uncommon diagnosis.

Competing Explanations and Limits of Inference

Bilateral thalamic lesions also have alternatives: deep cerebral venous thrombosis, metabolic injury, Wernicke encephalopathy, infection and inflammatory disease. An imaging pattern must therefore be interpreted, not merely recognized. Calling every bilateral thalamic abnormality “Percheron” would repeat the same one-diagnosis error the paper seeks to correct.

Discriminating Observations and Evidence Thresholds

A useful educational case exercise would present the initial symptoms, early CT, diffusion MRI and vascular anatomy in stages, asking what information changed the probability of an artery of Percheron infarct. The answer depends on imaging and anatomy rather than on a claim that bilateral confusion is pathognomonic. Recognition matters because time-sensitive stroke systems should be engaged while the diagnosis is clarified.

Implications for Interpretation and Future Inquiry

The institute's clinical argument is modest but consequential: uncommon vascular anatomy deserves a place in emergency differential diagnosis because delay can cost treatment opportunity. This educational discussion supports specialist evaluation and acute stroke systems; it does not recommend a home treatment or symptom-based substitute for imaging.

Selected Evidence and Further Reading

1. [Artery of Percheron Infarction: Imaging Patterns and Clinical Spectrum](#)
2. [Navigating the clinical landscape of artery of Percheron infarction: A systematic review](#)

Source lineage: Bilateral thalamic stroke investigation

Editorial note: Conceptual scientific commentary; not an original clinical trial, systematic review, peer-reviewed publication, or medical advice. Hypotheses are not established treatment effects.