

CASE REPORT

Beyond Uremic Encephalopathy: Timely Thrombolysis in Artery of Percheron Infarction Presenting as Isolated Altered SensoriumLakhan Parajiya¹, Tushar Raut², Neha Mishra³, Alisha Sadarangani⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT

Background: Artery of Percheron (AOP) infarction is a rare ischemic stroke caused by occlusion of a solitary perforating artery supplying both paramedian thalami. It commonly presents with altered consciousness rather than focal neurological deficits, often mimicking metabolic encephalopathy and delaying diagnosis. We report a case of AOP infarction presenting as isolated altered sensorium in a patient with advanced chronic kidney disease (CKD), successfully treated with timely intravenous thrombolysis.

Methods: A 70-year-old man with known stage 4 CKD, not on maintenance dialysis, presented with sudden-onset altered sensorium. Neurological examination revealed a low Glasgow Coma Scale score, drowsiness, confusion, impaired attention, and disorientation, while cranial nerve and motor examinations were largely preserved. Despite advanced CKD, the abrupt onset of symptoms and absence of significant metabolic derangements prompted activation of the acute stroke pathway. Magnetic resonance imaging was performed for definitive diagnosis, followed by intravenous thrombolysis within the therapeutic window.

Results: MRI demonstrated acute bilateral paramedian thalamic infarction consistent with artery of Percheron occlusion. The patient showed progressive neurological recovery following thrombolysis. During hospitalization, hemodialysis was initiated under nephrology supervision, and he completed multidisciplinary rehabilitation. He was discharged with minimal residual disability, achieving a modified Rankin Scale score of 1.

AUTHOR'S AFFILIATION:

¹Post-Doctoral Fellow, Department of Neurology, Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute, Maharashtra, India.

²Consultant Neurologist, Department of Neurology, Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute, Maharashtra, India.

³Post-Doctoral Fellow, Department of Neurology, Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute, Maharashtra, India.

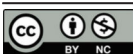
⁴Neurology Resident, Department of Neurology, Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute, Maharashtra, India.

CORRESPONDING AUTHOR:

Lakhan Parajiya, Post-Doctoral Fellow, Department of Neurology, Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute, Maharashtra, India.

E-mail: lakhanparajiya@gmail.com

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Conclusions: Acute isolated altered sensorium should prompt consideration of artery of Percheron infarction, even in patients with advanced CKD. Early clinical suspicion, prompt neuroimaging, and timely reperfusion therapy can result in excellent functional outcomes despite an initially deceptive presentation.

KEYWORDS

- Artery of Percheron • Bilateral Thalamic Infarction • Altered Sensorium
- Intravenous Thrombolysis • Chronic Kidney Disease

INTRODUCTION

Acute isolated altered sensorium is commonly attributed to metabolic encephalopathy in elderly patients with chronic kidney disease; however, it may represent a time-sensitive posterior circulation stroke. The artery of Percheron is an uncommon anatomical variant in which a single perforating artery arising from the P1 segment of the posterior cerebral artery supplies both paramedian thalami and occasionally the rostral midbrain. Occlusion of this vessel accounts for approximately 0.1–2% of ischemic strokes and produces a characteristic pattern of bilateral thalamic infarction.¹ Patients frequently present with altered consciousness, confusion, hypersomnolence, or memory impairment rather than obvious focal neurological deficits, making diagnosis challenging.^{1,6} Bilateral thalamic infarction has a broad differential diagnosis, including metabolic encephalopathy, deep cerebral venous thrombosis, Wernicke encephalopathy, and viral encephalitis.²

Patients with advanced CKD represent a particularly challenging population because altered sensorium is often attributed to uremia. We report a case in which clinical suspicion for posterior circulation stroke despite severe renal dysfunction enabled timely thrombolysis and an excellent functional outcome.

CASE REPORT

A 70-year-old man with previously diagnosed stage 4 chronic kidney disease, managed conservatively and not on maintenance dialysis, presented to the emergency department with sudden-onset altered sensorium. There was no history of trauma, seizures, fever, or preceding focal

neurological symptoms.

Neurological examination revealed a Glasgow Coma Scale score of 8/15 (E1V2M5). The patient was unresponsive to verbal stimuli, with no eye opening even to deep painful stimulus. He did not verbalize or follow commands and produced only incomprehensible sounds. Pupils were equal and reactive to light, extraocular movements were full, and there was no facial asymmetry. Motor examination revealed flickering movements of all four limbs in response to deep painful stimulus without obvious asymmetry. Bilateral plantar responses were flexor. Sensory examination, coordination, and gait could not be assessed because of impaired consciousness.

Admission investigations revealed a serum creatinine of 6.9 mg/dL and blood urea of 125 mg/dL, consistent with advanced chronic kidney disease. Despite these markedly elevated renal parameters, the abrupt onset of altered sensorium with preserved brainstem reflexes raised clinical suspicion for posterior circulation stroke and prompted immediate activation of the acute stroke code.

Urgent magnetic resonance imaging of brain demonstrated subtle restricted diffusion involving the bilateral medial thalami with extension into the dorsomedial midbrain anterior to the cerebral aqueduct and the posteromedial left temporal lobe, consistent with hyperacute artery of Percheron infarction. The absence of corresponding FLAIR hyperintensity indicated a DWI-FLAIR mismatch, supporting the hyperacute stage of infarction and reinforcing the decision to proceed with reperfusion therapy.²

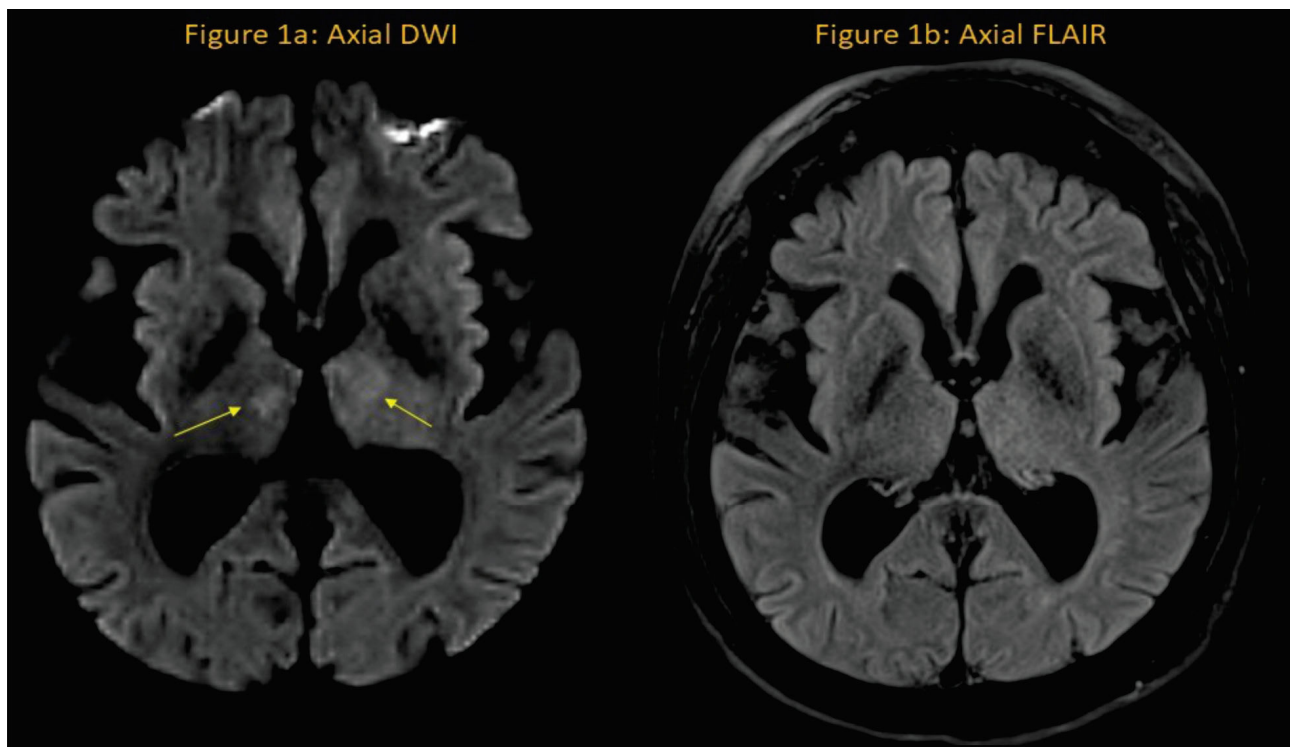


Figure 1: Hyperacute Artery of Percheron infarction on MRI; **A)** Axial diffusion-weighted imaging (DWI) demonstrates subtle symmetrical restricted diffusion involving the bilateral medial (paramedian) thalami, consistent with hyperacute artery of Percheron infarction, **B)** Corresponding axial FLAIR image shows no definite signal abnormality within the involved regions (DWI-FLAIR mismatch), supporting the hyperacute stage of infarction and eligibility for reperfusion therapy.

Following confirmation of eligibility, intravenous alteplase was administered at the standard dose of 0.9 mg/kg within the therapeutic window in accordance with acute ischemic stroke guidelines.⁴ The patient demonstrated progressive neurological improvement over the following days, with recovery of alertness, orientation, and attention.

During hospitalization, nephrology consultation recommended initiation of hemodialysis for renal management. He subsequently underwent multidisciplinary rehabilitation with steady functional recovery.

At discharge, he was ambulatory with minimal residual neurological deficit and achieved a modified Rankin Scale score of 1.

DISCUSSION

Artery of Percheron infarction represents a diagnostic challenge because its presentation differs substantially from classical hemispheric stroke syndromes and commonly manifests with altered consciousness, confusion, or hypersomnolence rather than focal neurological deficits.^{1,5,7} The bilateral paramedian thalami

are integral components of the ascending reticular activating system and neural networks governing attention, awareness, and cognition. Consequently, infarction involving these structures commonly produces drowsiness, confusion, impaired attention, and disorientation while sparing corticospinal pathways, explaining the absence of obvious motor deficits in our patient.³

The diagnostic dilemma was further compounded by markedly elevated renal parameters (serum creatinine 6.9 mg/dL and blood urea 125 mg/dL), which could readily have led to a diagnosis of uremic encephalopathy. However, the abrupt onset of symptoms, preserved brainstem reflexes, and high clinical suspicion for a posterior circulation stroke prompted urgent neuroimaging, ultimately enabling timely intravenous alteplase and an excellent functional outcome.

Magnetic resonance imaging with diffusion-weighted imaging remains the most sensitive modality for diagnosing AOP infarction, as early computed tomography may appear normal.^{2,8} Recognition of the characteristic bilateral paramedian thalamic diffusion restriction and DWI-FLAIR mismatch

facilitates early diagnosis and appropriate management.

The 2026 AHA/ASA Guideline for the Early Management of Patients with Acute Ischemic Stroke continues to recommend intravenous thrombolysis for eligible patients with acute ischemic stroke and emphasizes rapid recognition and treatment while refining evidence-based recommendations for acute reperfusion therapy.⁴ Advanced CKD alone is not considered an absolute contraindication to thrombolysis, and our patient's favorable recovery reinforces that atypical presentations should not delay activation of the stroke code.

This case underscores that isolated altered sensorium should not be dismissed as metabolic encephalopathy in patients with advanced CKD. Recognition of this atypical presentation enabled timely thrombolysis and an excellent functional outcome.

CONCLUSION

Artery of Percheron infarction should remain an important differential diagnosis in elderly patients presenting with acute isolated altered sensorium, particularly when symptoms begin abruptly. Careful neurological examination, early MRI, and timely intravenous thrombolysis can result in excellent functional recovery, even in patients with advanced chronic kidney disease.

Learning Points

This case highlights that acute isolated altered sensorium may be the sole manifestation of artery of Percheron infarction and that a preserved motor examination does not exclude acute ischemic stroke. Magnetic resonance imaging with diffusion-weighted imaging is crucial when posterior circulation stroke is suspected. Importantly, stage 4 chronic

kidney disease alone should not preclude consideration of intravenous thrombolysis, as early recognition and timely reperfusion therapy can result in excellent functional outcomes.

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