



# Focal Cerebral Hypoperfusion During the First Episode of Confusional Migraine in an Adult: A Case Report

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## Objectives

Acute Confusional Migraine (ACM) is a rare and underrecognized migraine variant, particularly in adults. It is characterized by transient confusion, disorientation, language impairment, and focal neurological symptoms, often leading to diagnostic uncertainty due to its exclusion from the current ICHD-3 classification. This report presents a rare adult case of ACM, confirmed with perfusion CT (PCT) and EEG during the acute phase, emphasizing key diagnostic features and the role of advanced neuroimaging in the emergency setting.

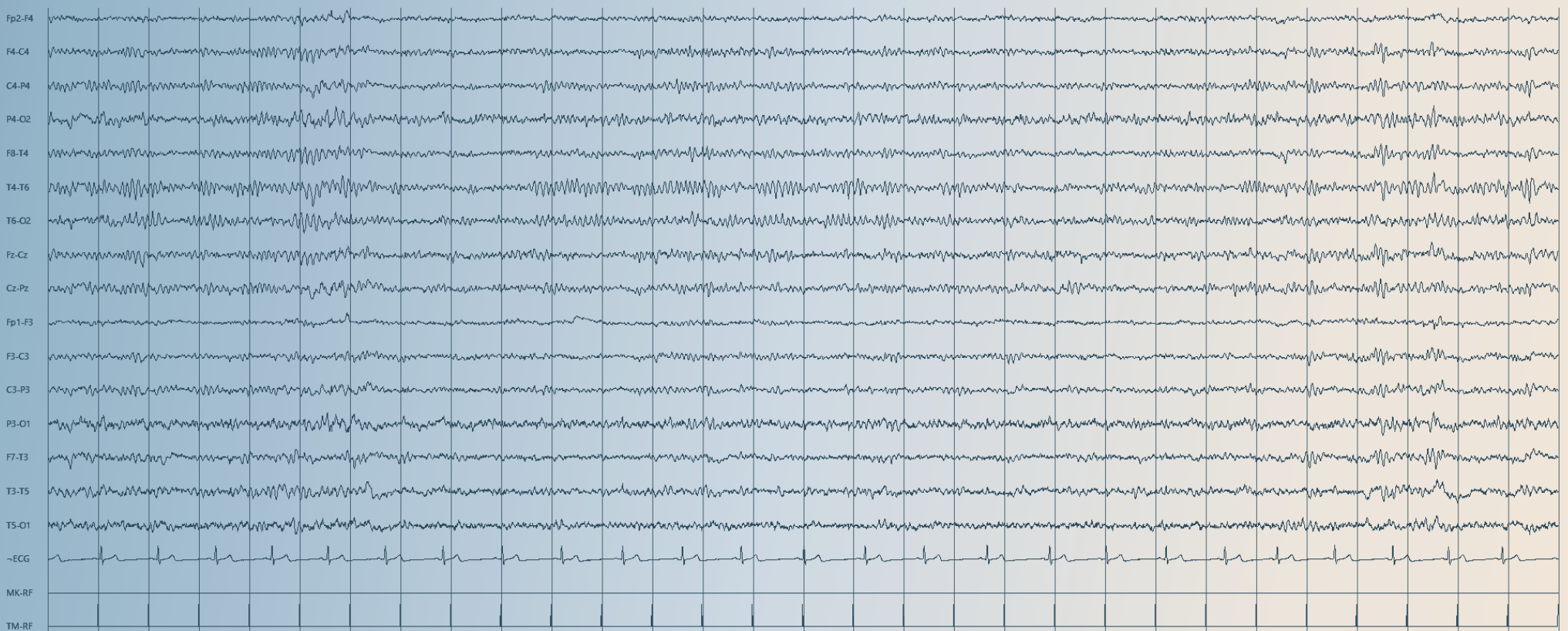
## Materials and methods

A 27-year-old man with no personal or family history of migraine presented to the emergency department with acute headache, confusion, visual disturbances, speech impairment, and right-sided paresthesia following intense psychological stress.

Diagnostic evaluation included neurological examination, routine laboratory tests, non-contrast brain CT, CT angiography, PCT analyzed via RAPID software, and EEG—all performed within 24 hours of symptom onset. Follow-up assessments were conducted over four months to monitor symptom recurrence or residual deficits.

## Results

The patient reported a severe left frontotemporal pulsating headache with bitemporal visual blurring, aphasia, memory disturbance, and right-sided sensory symptoms. Initial brain CT and angio-CT were unremarkable. However, PCT demonstrated focal hypoperfusion in the left temporal lobe and bilateral frontal lobes ( $T_{max} > 6$  sec; volume: 24 mL). EEG the next day revealed left hemispheric background slowing and hypovoltage. All symptoms resolved spontaneously within 24 hours. At four-month follow-up, the patient remained asymptomatic with no recurrence.



EEG showing slow theta activity over the left temporal region.

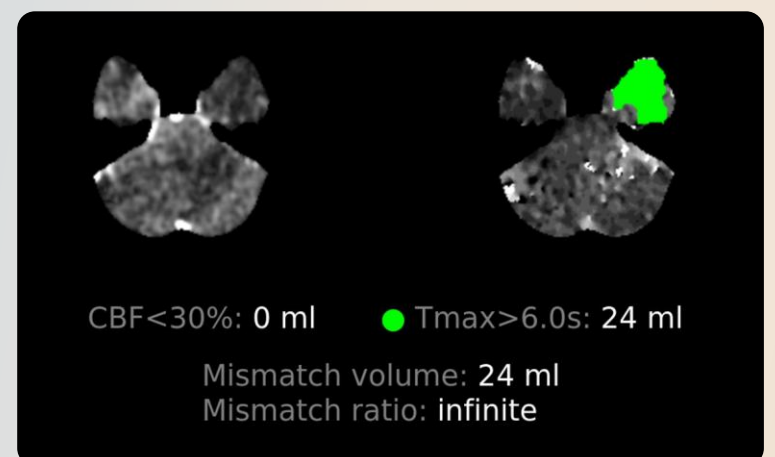
## Discussion

To our knowledge, this is the first documented adult case of ACM showing focal cerebral hypoperfusion on perfusion CT during the acute phase. The combined use of EEG and PCT may provide a valuable diagnostic tool for distinguishing ACM from stroke or seizure in emergency settings. Further case studies are necessary to validate these findings and develop standardized diagnostic criteria for ACM.

## Conclusions

This case highlights the diagnostic challenge of ACM in adults without migraine history. While EEG is helpful in revealing hemispheric slowing or diffuse dysfunction, this case uniquely demonstrates that PCT can detect transient focal cerebral hypoperfusion during the acute phase.

The hypoperfused areas, notably in the dominant temporal and frontal regions, correspond to the patient's language and cognitive symptoms. These findings support the theory that ACM shares pathophysiological mechanisms with migraine with aura, such as cortical spreading depression, resulting in transient perfusion deficits.



CT perfusion showing left temporal hypoperfusion ( $T_{max} > 6.0$  s, mismatch volume 24 ml).

## References

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