Case Report

Percheron Infarction: Is It Just a Rare Cerebrovascular Variant or a Forewarning of Severe Multiple Posterior Circulation Infarcts

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Percheron infarction, arising from occlusion of the Artery of Percheron, is few, which can result in bilateral thalamic and mesencephalic infarctions. We herein showcase a confirmed case of the Percheron infarction at the admission day, in which the patient advanced into severe multiple posterior circulation infarcts, along with petechial hemorrhage within the infarcts, even given the right therapy without delay. It reminds us that whether we could or should take this special infarction as a forewarning of more harmful infarcts getting in the way, or at least a precaution of poor vessel condition.

Key Words: Percheron infarction—cerebrovascular variant—forewarning—multiple posterior circulation infarcts

Introduction

The Artery of Percheron (AOP), named after Gerard Percheron who first described this unusual variation,[1] is an anatomic variant of posterior cerebral circulation existing in a single arterial trunk that arises by the proximal segment (P1) of one posterior cerebral artery (PCA) and supplies both paramedian thalami and rostral midbrain.[2] Occlusion of this artery results in symmetrical bilateral paramedian thalamic infarcts with or without midbrain involvement,[3] whose symptoms mainly comprise impaired consciousness, often with vertical gaze palsy and memory impairment.[4] We report a case of AOP infarction with a swift accurate diagnosis based on the head magnetic resonance imaging (MRI), but with an unfavorable prognosis due to the poor posterior cerebral circulation according to further inspection and later reexamination.

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Case Presentation

A 65-year-old woman was admitted to our neurology emergency department with sudden-onset unconsciousness that had occurred 13 hours previously. Admission head computed tomography (CT) was normal and soon the patient was transferred to neurology intensive care unit due to unknown coma with a Glascow Coma Scale of 7/15 with pupil diameter 2 mm bilaterally. Her past medical history was unremarkable except gouty arthritis, whose therapy remained unknown. Neurological examination revealed light coma, bilateral unresponsive miosis, left Oppenheim, and Babinski sigh. Painful expression and limb retraction can be seen when pressing the patient's orbit and there are occasional involuntary limb movements. All blood tests including those associated with metabolism and toxicity and electrocardiogram were not remarkable. Brain MRI and MR angiography (MRA) were performed swiftly for further evaluation. Diffusion-weighted imaging (DWI) sequence showed mirrored paramedian thalami infarction, corresponding with the territory of the AOP (Fig 1a and b). MRA showed cerebral arteriosclerosis and absence of left PCA, which probably branched off the AOP embolized and part of the basilar artery was incompletely visualized (Fig 1c). Thus, we managed the patient as a special ischemic stroke and dual antiplatelet therapy along with intensive lipid-lowing treatment was administered immediately. Particularly, we give the patient Cinepazide (320 mg/day) and Vinpocetine (30 mg/day) by intravenous drip to improve brain circulation.

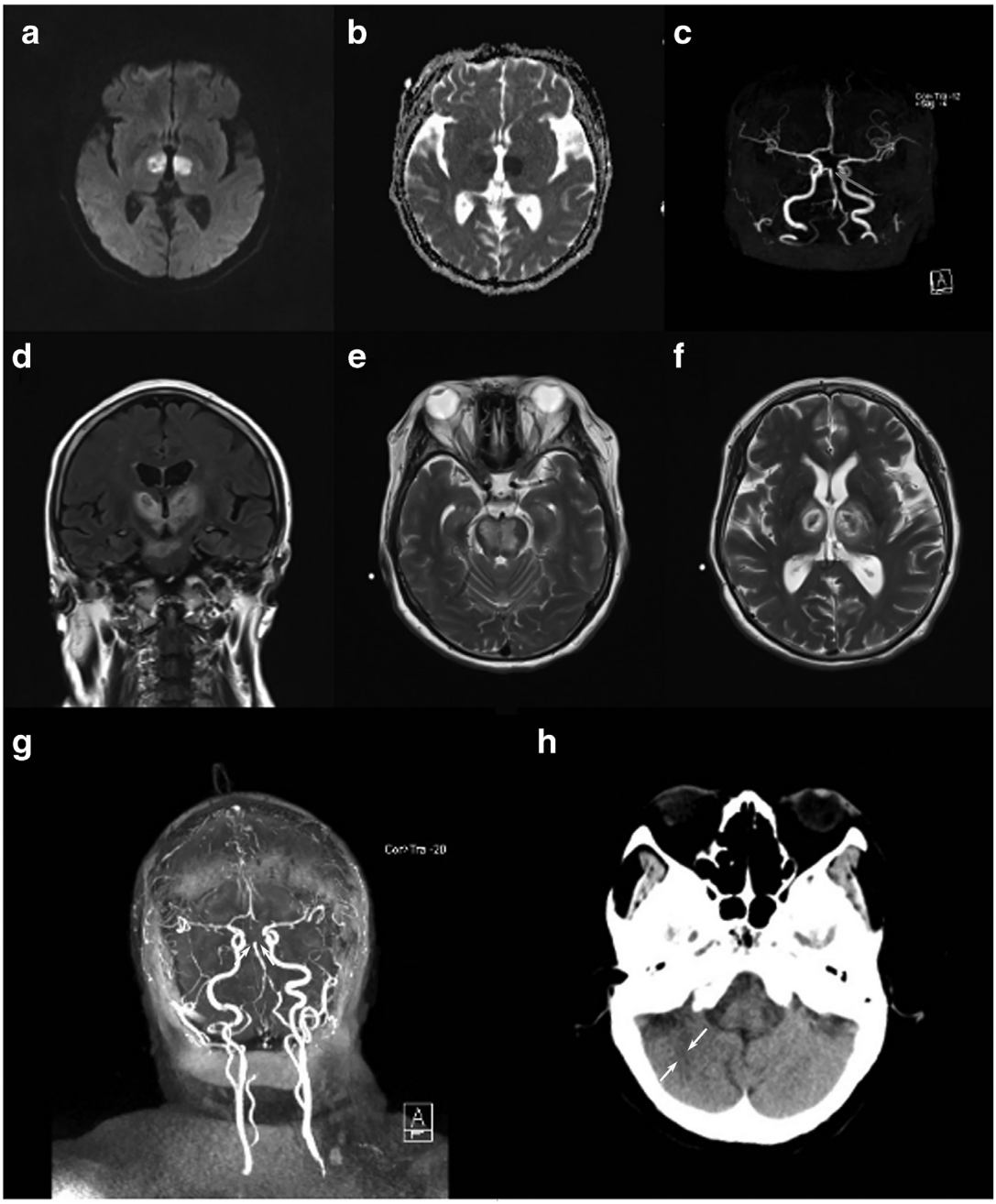

Figure 1. *(a) DWI and (b) Apparent diffusion coefficient (ADC) showed diffusion restriction limited within both thalami. (c) MRA showed absence of left PCA as shown by the red arrow. (d) FLAIR and (e) and (f) T2WI showed high-signal intensity outside the original lesion, involving brainstem and with low signal in both thalami. (g) CE-MRA showed lack visualization of both PCA and part of the basilar artery as shown by arrows. (h) CT showed new low density on the right cerebellar hemisphere as shown by arrows. Abbreviations: CT, computed tomography; MRA, MR angiography; PCA, posterior cerebral artery. (Color version of figure is available online.)*

However, as the curative effect was not favorable after 2 weeks of treatment, another head contrast-enhanced MRI and CE-MRA were requested, which indicated that the lesion range was larger than before, involving brainstem, with hemorrhagic transformation in both thalami (Fig 1d-f), and both PCA and part of the basilar artery were not visible (Fig 1g). As a result, we had to adopt antiplatelet therapy solo. Follow-up head CT after another 12 days suggested new infarction on right cerebellar hemisphere (Fig 1h). Finally, after sequential infarcts attributable to the poor posterior circulation, the patient was in minimally conscious state, had eyes movement following aural and light stimuli, could flex her right limbs responding to painful stimuli and was discharged after 32 days from admission and transferred to rehabilitation hospital for further care. Her follow-up modified Rankin Scale was 5 at 3 months.

Discussion

To the best of our knowledge, the prognosis of Percheron infarction with brainstem involvement is unfavorable generally.[5] This case highlights the head MRI especially DWI sequence plays a vital role in early recognition of the Percheron infarction if the initial brain CT is normal. A clinician should keep it in mind that this may herald a more complicated stroke as we state above. Although not every Percheron infarction is the case, we should still raise high awareness about this peculiar phenomenon in order to prevent the patient from catastrophic results. Further examinations are essential to have a comprehensive master of the big picture of the stroke, including overall vessels evaluation from heart to brain, as a precaution. Dynamic reviews such as head CT and MRI are indispensable to adjust therapy in time. Another point of interest is that the AOP is too small to be visualized on MRA or other conventional angiography and lack of visualization cannot exclude its existence as we could also not reveal in this case.[5,6]

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