AFMN BIOMEDICINE

CASE REPORT

ARTERY OF PERCHERON INFARCTION PRESENTING AS COMA AND ACUTE-ONSET VASCULAR DEMENTIA: A CASE REPORT

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A rare anatomic variant that arises from the P1 segment of the posterior cerebral artery (PCA) and vascularized thalami is the artery of Percheron (AOP). We present a patient with acute onset of unconsciousness that occurred as a result of bilateral thalamic infarction verified by magnetic resonance imaging (MRI). Bilateral thalamic infarction was the cause of the acute onset of dementia that we followed over the next 30 months. A 54-year-old female was admitted to the Neurological Emergency Unit because of sleepiness that began a few hours after awakening. During the examination, the patient developed a deeper disturbance of the state of consciousness lasting forty minutes with a Glasgow coma score of 3/15. Brain MRI showed symmetric bilateral thalamic infarcts and upper midbrain lesions. Mini-Mental State Examination, which is used to evaluate global cognitive function, was 19 on the sixth day of the disease course. The patient remained with vascular dementia 30 months later. The middle age of the patient, female sex, sleepiness, coma, and vascular dementia are the unique clinical features of our case. A middle-aged female patient with coma and vascular dementia that followed for 30 months has never been reported before.

Keywords: coma, posterior cerebral artery, vascular dementia

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INTRODUCTION

The Percheron artery is a blood vessel that provides vascularization to the paramedian thalamus and the rostral portion of the midbrain, and it arises from the P1 segment of the posterior cerebral artery (PCA) (1). In the literature, this artery was first described in 1973 by the French neurologist Percheron (2). The Percheron artery was observed in 4 to 12 percent of the population (3), while infarction of the Percheron artery appears in 0.1 to 2 percent of all ischemic strokes (4). Approximately 11 percent of all strokes in the vertebrobasilar territory are thalamic strokes (5). The most common symptoms resulting from occlusion of the Percheron artery include disturbance of mental status, vertical gaze palsy, behavioral disorders, speech problems, hypersomnolence, and coma (6). When the paramedian thalamus is affected by a stroke, the dominant symptoms are cognitive impairment and behavioral disturbances (7). The best method for diagnosing bilateral paramedian thalamic infarction is magnetic resonance imaging.

CASE REPORT

A 54-year-old female, a housewife, was admitted to the Neurological Emergency Unit of Clinical Center Kragujevac because of sleepiness that developed a few hours after awakening. The patient had no history of prior illnesses, except that she was an extreme smoker. During the examination, the patient developed a deeper disturbance of the state of consciousness lasting forty minutes with a Glasgow coma score of 3/15. A neurological examination found miotic pupils, which were not reactive to light. She had neither sensory nor motor focal signs. After that, the state of consciousness improved and the patient became drowsy, slow to respond, but adequately responsive to questions, and remained in this state for the next five days. A computerized tomography scan of the brain performed on admission was unremarkable. Digital subtraction angiography showed the occlusion of the Percheron artery-type IIb (Figure 1; Figure 2). After waking up, the patient developed slowed response. Cardiologic examination revealed arterial hypertension. Laboratory examination showed newly registered type 2 diabetes mellitus. During hospitalization, an echocardiogram was done and was described as normal, as well as a 24-hour Holter ECG. Coagulation screening-platelet count, fibrinogen, prothrombin, prothrombin time test and INR (PT/INR), partial thromboplastin time test, antiphospholipid antibodies, D-dimer were normal. Also, thyroid-stimulating hormone, serum folic acid, serum vitamin B_{12} and imunoserological analyses were normal. Computed tomography of the brain performed immediately on admission was normal.

Magnetic resonance imaging of the brain was performed 24 hours after admission and demonstrated the existence of symmetric bilateral thalamic infarct and upper midbrain lesions (Figure 3). Mini-Mental State Examination, which is used to evaluate global cognitive function, was 19/30 on the sixth day of hospitalization. Dominant symptoms were: difficulty paying attention or concentrating, difficulty organizing thoughts, difficulty making plans and communicating them, slowed thinking, memory loss and speech difficulties. During hospitalization, the Mini-Mental

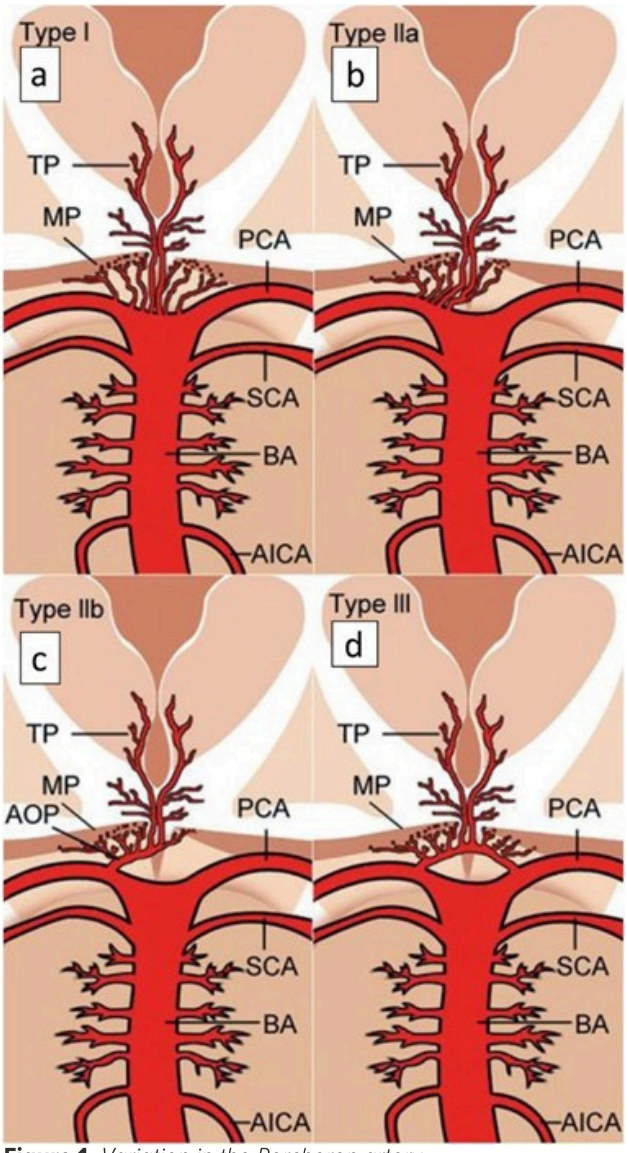


Figure 1. *Variation in the Percheron artery*

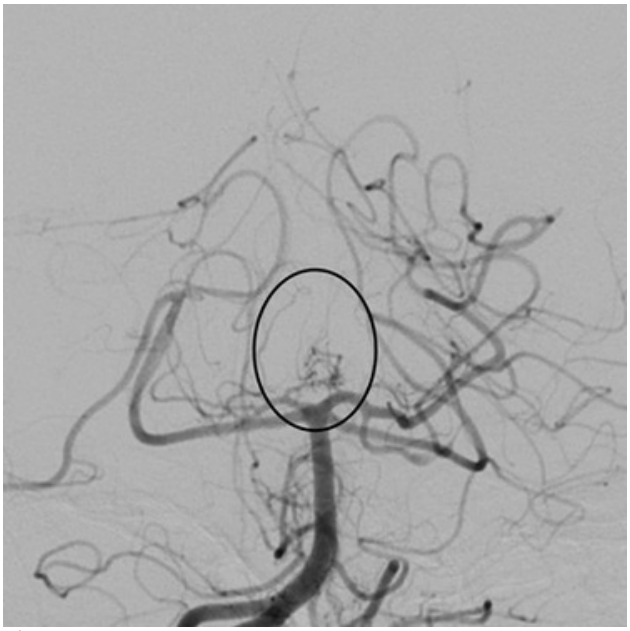


Figure 2. *Occlusion of the Percheron artery-type IIb by digital subtraction angiography*

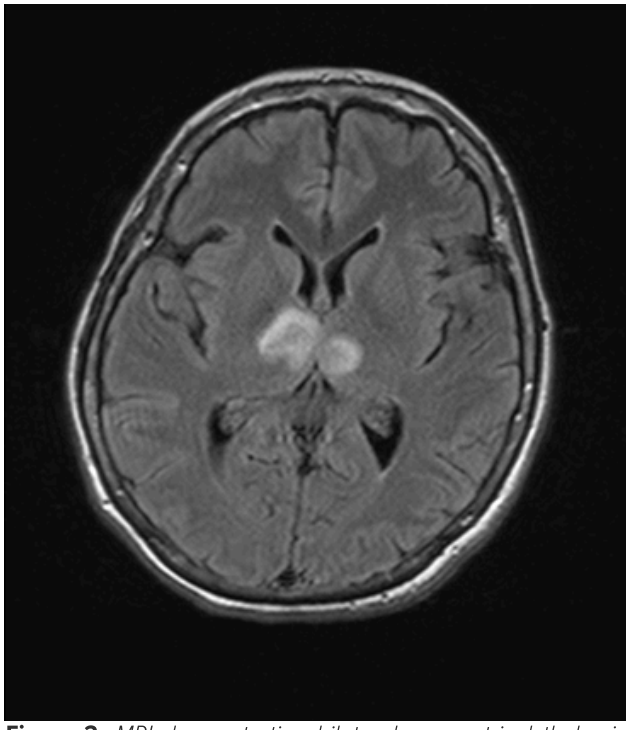


Figure 3. *MRI demonstrating bilateral, symmetrical thalamic infarction*

State Examination was repeated on the twelfth day of hospitalization and was identical to the previous one. On discharge, on the thirtieth day, the Mini-Mental State Examination score was 21/30. The patient was treated with antiplatelet and antihypertensive therapy. The patient was followed clinically, neurologically, neuropsychologically, and radiologically for 30 months. On neurological examination, there was no pyramidal/motor deficit. A brain MRI, 30 months later, demonstrated bilateral thalamic infarction in the chronic phase. Neuropsychological testing Mini-Mental State Examination score was 21/30. The patient demonstrated physical deficits manifested in psychomotor slowness, overall slow motor function, and apathy impacting the ability to complete daily activities. The patient remained with vascular dementia 30 months later.

DISCUSSION

The thalamus is part of the diencephalon, containing nuclei that control nociception, speech, motor and cognitive functions. It also contains nuclei responsible for motivation and behaviour (8). The vascularization of this part of the thalamus is divided into four regions: anterior, paramedian, posterior, and inferolateral (9). The artery that supplies the paramedian part of the thalamus arises from the posterior communicating artery and the P1 and P2 segments of the posterior cerebral artery (10). One of these arteries is the Percheron artery, which is a single blood vessel, which supplies bilateral vascularization of the thalamus. The prevalence of this artery varies from 7 to 11 percent (11). Occlusion of this artery leads to infarction of both paramedian thalami and the midbrain. The highest incidence of infarction in this region is between 60 and 70 years of age, with a slightly higher incidence among men (12). We presented a 54-year-old female patient. The etiology of this disease is multifactorial. Risk factors for ischemic stroke include: cardiovascular risk factors, diabetes mellitus, smoking, alcohol consumption, hyperlipidaemia, and physical inactivity (13). In our patient's history of risk factors, we had newly diagnosed hypertension, diabetes mellitus, and smoking. According to the literature, ischemic stroke in the region of bilateral paramedian thalamus clinically manifests as vertical gaze palsy , memory and behavioural disturbances, confusion, coma, disturbances of mental status, speech disorders, motor deficit, and cerebellar signs (14). In our case, we presented a female patient who had coma and associated vascular dementia manifesting as attentional disturbances, memory impairment and speech problems, psychomotor slowing and apathy which affected her activities in everyday life. The patient had a typical clinical picture of bithalamic infarction. One of the components of the reticular activating system is the thalamus. The intralaminar nuclei of the thala-

mus play the most significant role in transmitting information from the reticular activating system to the cortex (6). Coma is the most severe disorder of consciousness and is characterized by the inability to open the eyes, the inability to speak, and the absence of a motor response (GCS < 6). The diagnostic criteria for acute stroke in the territory of the Percheron artery is coma lasting less than 24 hours, based on a small ischemic lesion in the region of the unilateral or bilateral paramedian thalamus and/or rostral midbrain. In a study that analyzed 30 patients with Percheron artery infarction (PAIC), lesions of the paramedian thalamus and/or rostral midbrain were described in 46.7 percent of cases (15). The dorsomedial and intralaminar nuclei control memory and behavior. Ischemic lesions in the region of the paramedian thalamus lead to disruption of connections between the thalamus and the cerebral cortex and manifest with the following symptoms: amnesia, apathy, and memory disturbances (16). Several cases of thalamic dementia resulting from occlusion of the Percheron artery (AOP) have been described in the literature; however, thalamic infarctions are considered strategic lesions in the etiology of vascular or post-stroke dementia.

Saida et al. (17) presented three patients with ischemic stroke in the thalamic region who manifested hypersomnia, coma, vertical gaze palsy, and neuropsychiatric disorders.

Koutosuraki et al. (18) described a 38-year-old male patient without risk factors whose clinical features included memory impairment, hypophonia, and apathy. The patient was not followed up further. García-Casares et al. (19) reported a 42-year-old male patient who was a smoker and presented with memory and behavioral disturbances; he was followed up for the next six months.

Kouasi and Doumbia-Ouattara (20) described a 51-year-old HIV-positive patient who had a paramedian bithalamic infarction with acute onset of thalamic dementia and who died two months later. The dominant symptoms were amnesia and dysexecutive syndrome.

The patient's middle age and the female sex are some of the unique clinical features of our case. Clinical manifestations of our patient consisted of sleepiness, coma, and thalamic dementia.

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Author Contributions

Study design, data collection, A.A.A.; Analysis, S.M.D.

Statement of Ethics

Not applicable.

Statement of Competing Interest

The authors declare no relevant conflicts of interest.

Statement of Data Availability

Not applicable.

Statement of Generative AI Technologies Use

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REFERENCES

1. Lazzaro NA, Wright B, Castillo M, Glastonbury CM, Hildenbrand PG, Wiggins RH, et al. Artery of Percheron infarction: imaging patterns and clinical spectrum. AJNR Am J Neuroradiol 2010; 31: 1283–9. [CrossRef]

2. Percheron G. The anatomy of the arterial supply of the human thalamus and its use for the interpretation of the thalamic vascular pathology. Z Neurol 1973; 205: 1–13. [CrossRef]

3. Pantovic A, Lepic T, Pasovski V, Krsmanovic Z, Raicevic R. Artery of Percheron infarction associated with COVID-19 in the young adult. J. Neurovirol 2021; 27: 951–3. [CrossRef]

4. Kichloo A, Jamal SM, Zain EA, Wani F, Vipparala N. Artery of Percheron Infarction: A Short Review. J Investig Med High Impact Case Rep 2019; 7: 2324709619867355. [CrossRef]

5. Lopez-Serna R, Gonzalez-Carmona P, Lopez- Martınez M. Bilateral thalamic stroke due to occlusion of the artery of Percheron in a patient with patent foramen ovale: a case report. J Med Case Rep 2009; 3(1): 7392. [CrossRef]

6. Khanni JL, Casale JA, Koek AY, Espinoza Del Pozo PH, Espinoza PS. Artery of Percheron infarct: an acute diagnostic challenge with a spectrum of clinical presentations. Cureus 2018; 10(9): e3276. [CrossRef]

7. Zhang M, Feng Z, Yu W, Fu C. Artery of Percheron as a rare feeder of hemorrhagic thalamic arteriovenous malformation: a case report and literature review. Int J Gen Med 2020; 13: 771-4. [CrossRef]

8. Ranasinghe K, Herath H, Dissanayake D, Seneviratne M. Artery of Percheron infarction presenting as nuclear third nerve palsy and transient loss of consciousness: a case report. BMC Neurology 2020; 20(1): 320. [CrossRef]

9. Amin OS, Shwani SS, Zangana HM, Hama Husein EM, Ameen NA. Bilateral infarction of paramedian thalami: a report of two cases of artery of Percheron occlusion and review of the literature. BMJ Case Rep 2011; 2011: bcr0920103304. [CrossRef]

10. Kocaeli H, Yılmazlar S, Kuytu T, Korfali E. The artery of Percheron revisited: a cadaveric anatomical study. Acta Neurochir. 2013; 155 (3): 533–9. [CrossRef]

11. Cosson A, Tatu L, Vuillier F, Diop M, Monnier G. Arterial vascularization of the human thalamus: extraparenchymal arterial groups. Surg Radiol Anat 2003; 25: 408-15. [CrossRef]

12. Sandvig A, Lundberg S, Neuwirth J. Artery of Percheron infarction: a case report. J Med Case Rep 2017; 11: 221. [CrossRef]

13. Lamot U, Ribaric I, Popovic Surlan K. Artery of Percheron infarction: review of literature with a case report. Radiol Oncol 2015; 49: 141-6. [CrossRef]

14. Caballero PE. Bilateral paramedian thalamic artery infarcts: report of 10 cases. J Stroke Cerebrovasc Dis 2010; 19(4): 283–9. [CrossRef]

15. Tong DM, Liu GM, Wang YW, Gu HP, Wang Y, Bao JJ, et al. The time course of acute Percheron artery ischemic coma on imaging: A retrospective cohort study. Brain Res Bull 2020; 165: 298-304. [CrossRef]

16. Snyder HE, Ali S, Sue J, Unsal A, Fong C, Deng Z. Artery of Percheron infarction with persistent amnesia: a case report of bilateral paramedian thalamic syndrome. BMC Neurol 2020; 20(1): 370. [CrossRef]

17. Saida EI, Saad HM, Zghidi M, Ennouri E, Ettoumi R, Boussararsar M. Artery of Percheron Stroke as an Unusual Cause of Hypersomnia: A Case Series and a Short Literature Review Am J Mens Health 2020; 14(4): 1557988320938946. [CrossRef]

18. Koutsouraki E, Xiromerisiou G, Costa V, Baloyannis S. Acute bilateral thalamic infarction as a cause of acute dementia and hypophonia after occlusion of the artery of Percheron. J Neurol Sci 2009; 283(1-2): 175-7. [CrossRef]

19. García-Casares N, Garzón-Maldonado FJ, de la Cruz-Cosme C. Thalamic dementia secondary to acute bilateral paramedian thalamic infarcts after occlusion of the artery of Percheron. Rev Neurol 2008; 46(4): 210-2. [CrossRef]

20. Kouassi LK, Ouattara MD. Acute onset vascular dementia with bi-thalamic infarct in an HIV-positive subject. Am J Case Rep 2017; 18: 1145–7. [CrossRef]