



Bilateral Thalamic Infarct: Occlusion of the Percheron Artery

Bilateral Talamik Infarkt: Percheron Arteri Oklüzyonu

Ş. Sevil ALTUNRENDE¹, Arzu CANAN¹, Serpil YILDIZ², Nebil YILDIZ²

¹Abant İzzet Baysal University Medical Faculty, Department of Radiology, Bolu, Turkey

²Abant İzzet Baysal University Medical Faculty, Department of Neurology, Bolu, Turkey

Dear Editor;

The arterial blood supply of the thalamus and midbrain is provided by perforating arteries which could have several variations. The artery of Percheron is a variant which originates from the P1 segment of the posterior cerebral artery. Its occlusion results in infarction of bilateral paramedian thalamic and mesencephalon (1). We would like to draw the reader's attention to a patient with occlusion of the artery of Percheron.

The patient was a 55-year-old man investigated for a left lung mass, massive pleural effusion and left-sided Horner's syndrome. While his examinations were going on for lung cancer, he developed altered mental status. In neurological examination, he was unresponsive to verbal commands and he had extension movements in his all four extremities in response to painful stimuli. He also had anisocoria (the right pupil was larger than the left), pupillary light reflex was absent in both eyes, and his right eye deviated laterally. Vertical oculocephalic reflex was not present and his right eye did not show adduction with turning the head to the right side. Bilateral extensor plantar responses were observed. The initial brain computed tomography (CT) was normal and a repeat CT the following day demonstrated hypodensities in both paramedian thalamic and mesencephalothalamic junction. Magnetic resonance imaging (MRI) was carried out and demonstrated high signal intensity areas on T2-weighted and FLAIR images bilaterally and symmetrically in the paramedian thalamic, mesencephalothalamic junction, right anterior, posterosuperior cerebellar hemisphere, and the left occipital lobe. Trace diffusion weighted imaging (DWI) and

apparent diffusion coefficient (ADC) maps confirmed the restriction of water diffusion (Figs.1A-C, 2A-F); there was no enhancement in post-contrast T1-weighted images. These findings were compatible with acute ischemia due to occlusion of the artery of Percheron. Multiple acute infarcts in the right anterior and posterosuperior cerebellar hemisphere and the left occipital lobe indicated that also other arteries originating from the vertebro-basilar blood supply were involved in this event. The echocardiography was normal. During his hospitalization, at the 15th day of coma, the patient has passed away due to the systemic complications of his malignancy and its treatment.

Bilateral thalamic lesions may also occur due to arterial and venous occlusion, infiltrative neoplasm, and infectious and inflammatory lesions which are discordant with our patients findings (2,3). The patient had acute bilateral paramedian thalamic

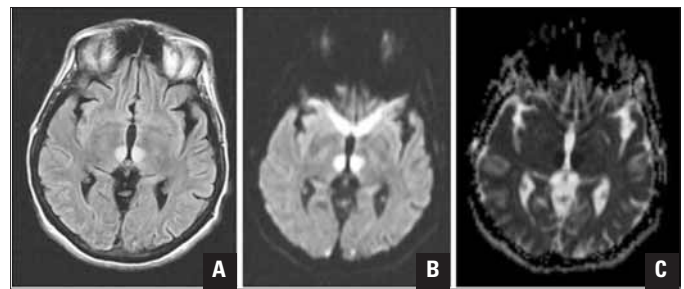


Figure 1A-C. T2-weighted FLAIR axial image (A) demonstrating symmetrical bilateral hyperintense lesions in both paramedian thalamic, DWI image (B) shows strongly hyperintense and ADC map image (C) demonstrating vague hypointensity.

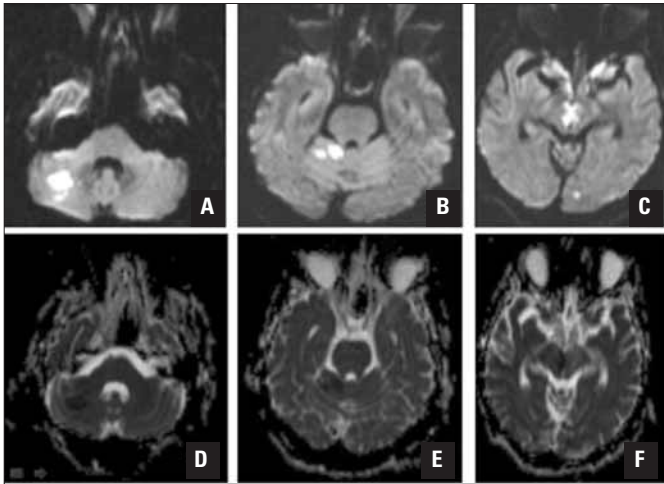


Figure 2 A-F. DWI and ADC maps show restriction of diffusion spreading to the other structures such as (A,D) the right posterosuperior and (B,E) anterior cerebellar hemisphere, and (C,F) left occipital lobe and pial surface of the midbrain at the interpeduncular fossa

and mesencephalothalamic infarctions suggesting the occlusion of Percheron artery, but we could not demonstrate its definite etiology.

Bilateral paramedian thalamic infarcts are typically characterized by a triad of altered mental status, vertical gaze palsy,

and memory impairment. Our patient had coma, left 3rd cranial nerve palsy and abnormal oculocephalic response with vertical gaze palsy (3,4). When bilateral paramedian thalamic infarcts are encountered, occlusion of Percheron is considered as the main diagnosis. One may suggest a conventional angiography to be performed in this patient to show the occlusion, but it might be useless, since it could neither show the occluded artery of Percheron, nor exclude its absence (1).

The radiological features attributed to the occlusion of this artery should be differentiated from the radiological features of occlusion of multiple other vascular branches due to several diverse pathological conditions such as vasculitis or infectious diseases.

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