

Petroclival Meningioma Accompanying Posterior Cerebral Artery Infarction

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Dear Sir:

Meningiomas are one of the most common brain tumors. Because of their slowly progressive nature, they are usually benign and are asymptomatic throughout the patient's life.¹ Petroclival meningioma usually originates from the petrous tip medial to the trigeminal nerve. By virtue of the location, diverse neurological deficits due to the compression of cranial nerves have been reported.² However, compression of arteries that cause ischemic symptoms is rare.³ Here, we report a case of petroclival meningioma accompanying posterior cerebral artery (PCA) infarction.

A 75-year-old woman with hypertension visited the emergency department owing to left homonymous hemianopia, which started 3 days prior. Magnetic resonance imaging revealed acute infarction in the right PCA territory (Figure 1A) and occlusion of the P1 portion of the right PCA (Figure 1B). Six years prior to this presentation, the patient was diagnosed with meningioma originating from the petroclival area (Figure 1C). The extent of meningioma included the internal auditory canal, right cavernous sinus, and Meckel's cave. The patient received four courses of radiotherapy during the first year after the diagnosis. However, no change was observed in the size of the meningioma.

No other significant stenoses at the intracranial and extracranial arteries were observed on magnetic resonance angiography. Extensive cardiac workups, including Holter monitoring, and transthoracic and transesophageal echocardiography, did not reveal any intracardiac embolic source. A week after symptom onset, follow-up computed tomographic angiography (CTA) was performed. The PCA was not recanalized.

Compared with the CTA performed 5 months before the infarction (Figure 1D), the follow-up CTA revealed that the PCA was compressed between the crus cerebri, hypothalamus, and the slightly enlarged meningioma (arrowhead) in the perimesencephalic cistern (Figure 1E).

Even when the arteries are totally encased inside the meningioma, blood flows are usually maintained.⁴ The slow growth, less-invasive nature, and insufficient external force of the meningioma, which may bounce the artery rather than compress it, may explain the low occurrence rate of ischemic symptom. However, a few cases of internal carotid artery (ICA) occlusion due to compression by a meningioma were reported.³ At the level of the skull base, ICA is attached to the dura mater, its flexibility is restricted, and it may be prone to compression.³ A case with anterior cerebral artery (ACA) infarction caused by a small planum sphenoidale meningioma compressing the ACA inside the narrow interhemispheric fissure can be explained by a similar mechanism, which is restricted mobility within a limited space.⁵ In the present case, PCA was also compressed by the petroclival meningioma inside the narrow perimesencephalic cistern, which consisted of the crus cerebri, hypothalamus, and medial temporal lobe.

The possibility of other mechanisms was considered, including cardioembolism, radiation,⁶ or coagulopathy associated with meningioma.⁷ However, no intracardiac embolic source was detected in an extensive cardiac workup. The CTA performed 5 months prior did not show any stenosis, and the blood coagulation test result was normal.

Ischemic stroke caused by compression of cerebral arteries by a meningioma is rare. However, in certain locations surrounded by various fixed structures in a narrow space, the pos-

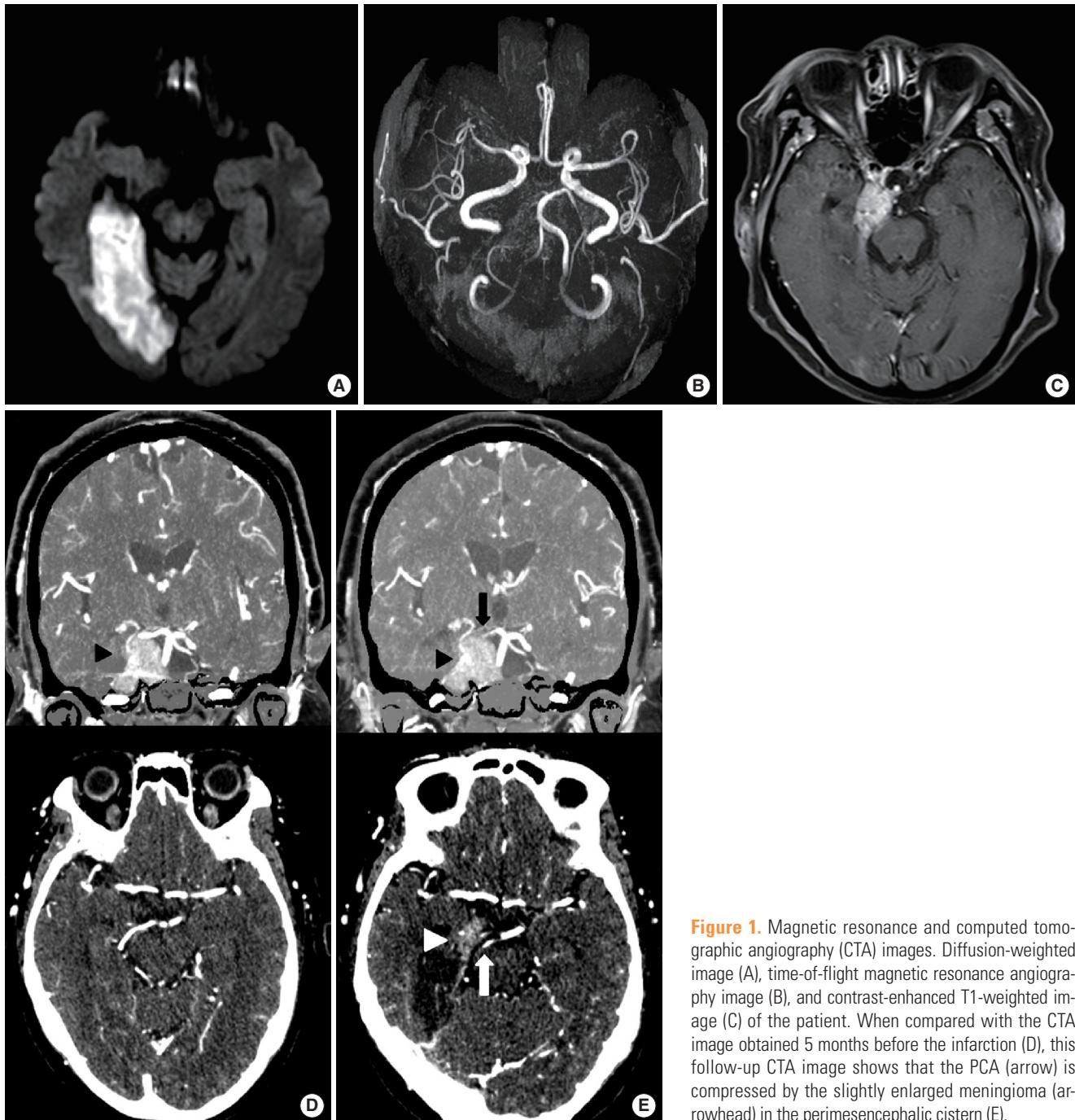


Figure 1. Magnetic resonance and computed tomographic angiography (CTA) images. Diffusion-weighted image (A), time-of-flight magnetic resonance angiography image (B), and contrast-enhanced T1-weighted image (C) of the patient. When compared with the CTA image obtained 5 months before the infarction (D), this follow-up CTA image shows that the PCA (arrow) is compressed by the slightly enlarged meningioma (arrowhead) in the perimesencephalic cistern (E).

sibility of a cerebral infarction may be high. Therefore, meningioma found in narrow spaces near cerebral arteries may be evaluated by using CTA or transcranial Doppler to investigate the presence of stenosis or blood flow disturbance caused by compression.

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