Thalamoperforating artery

- Acute ischemic stroke caused by compression of the artery of Percheron by arachnoid cyst
- Lacunar Syndromes (Archived)
- Angiographic features and progression risk factors in children with asymptomatic moyamoya disease
- Type III Percheron's variant in thalamic-mesencephalic infarction: the unexpected anastomosis
- Posterior Communicating Artery / Posterior Cerebral Artery
- Artery of Percheron, an Uncommon Variant of Posterior Cerebral Circulation: A Case Report
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- Microsurgical Clip Reconstruction of a True Posterior Communicating Artery Aneurysm

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The thalamoperforating artery, also known as thalamogeniculate artery or thalamic perforating artery, is a specific type of perforating artery in the brain. It arises from the posterior cerebral artery and supplies blood to the thalamus, a critical part of the brain involved in the sensory relay and integration.

The irrigation of the thalamus depends mainly on the thalamoperforating arteries. There are many anatomical variations in these arteries, the best known being the artery of Percheron.

Damage to the thalamoperforating artery can result in reduced blood flow to the thalamus, which can lead to sensory deficits and other neurological symptoms.

These perforating arteries, including the thalamoperforating artery, are relatively small and vulnerable to damage, so their proper function and health are crucial for normal brain function. Any issues that affect the blood supply to the thalamus can have significant neurological consequences.

The thalamogeniculate artery is a branch of the posterior cerebral artery supplying medial and lateral geniculate nucleus and the pulvinar nuclei of the thalamus.

Cerebral aneurysms of perforating arteries are rare and can be difficult to detect on computed tomography angiography (CTA) and digital subtraction angiography. Treatment is challenging and associated with a significant risk of morbidity. Endovascular treatment of a thalamoperforating artery (TPA) aneurysm within the midbrain has not previously been reported.

Observations: A 13-year-old girl with no previous medical history presented with unconsciousness and anisocoria. Head computed tomography showed a right midbrain hemorrhage. CTA showed a midbrain arteriovenous malformation fed by a TPA aneurysm arising from the P1 segment of the right

posterior cerebral artery. The feeder had a small distal aneurysm, which increased in size over time. Endovascular embolization was then performed.

Lessons: Cerebral aneurysms of perforating arteries are rare and can be difficult to treat. This is the first report of the endovascular treatment of a TPA aneurysm within the midbrain. Understanding the individual patient's brainstem perforator anatomy and the associated blood flow is essential before occluding a TPA aneurysm to avoid causing ischemia or infarction. Arteriovenous malformation embolization within the brainstem should be avoided because of interperforator anastomoses [1].

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Hirata Y, Okawa M, Ishii A, Abekura Y, Mori H, Kikuchi T, Yamao Y, Miyamoto S, Arakawa Y. Ruptured brainstem arteriovenous malformation associated with a thalamoperforating artery aneurysm arising from the P1 segment of the right posterior cerebral artery: illustrative case. J Neurosurg Case Lessons. 2023 Oct 9;6(15):CASE23294. doi: 10.3171/CASE23294. PMID: 37910013.