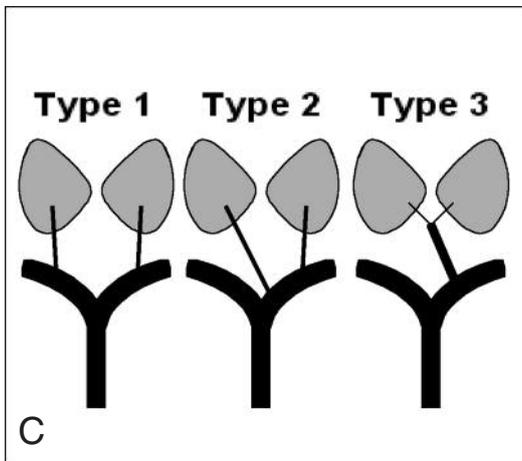
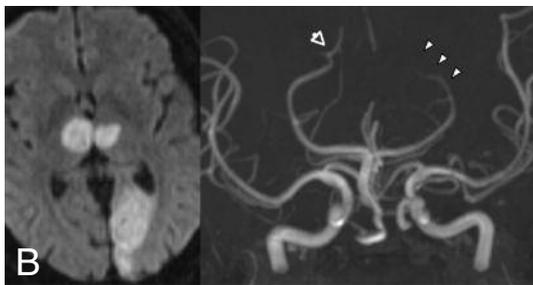
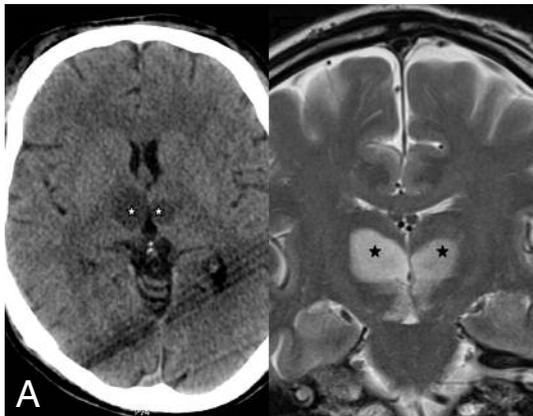


IMAGES IN CLINICAL RADIOLOGY



Bithalamic acute stroke: artery of Percheron

F.C. Deprez, P. Bosschaert, X. Leysen¹

A 44-year-old man without medical history was admitted to the emergency room in a coma. He had not reported work and was discovered lying on the ground of his home in the evening by his brother. The initial Glasgow Coma Scale score was a 5. Head CT study without contrast agent injection was performed and revealed well delimited bithalamic central hypodensities (Fig. A1, axial view, stars in the paramedian thalami), suggestive for sub-acute ischemic lesions. MRI series showed high diffusion and FLAIR-weighted signal of the two paramedian thalami and of the internal side of the left occipital lobe confirming recent ischemic lesion (Fig. A2, FLAIR-weighted frontal view, Fig. B1, Diffusion-weighted axial view). Time-of-flight (TOF) magnetic resonance angiography well demonstrated distal amputation of the left posterior cerebral artery (PCA), due to acute thrombosis or embolic occlusion (Fig. B2, arrow on the normal right PCA, arrowheads on the amputated left PCA). Bithalamic infarction was attributed to an anatomic variation: a common trunk for the two thalamic paramedian arteries, concerned by the PCA obstruction.

The patient benefited from antiaggregant treatment by acetylsalicylic acid. Tracheotomy and gastrostomy were also necessary. Consciousness partial recovery was observed in the patient two days after admission.

Comment

Thalami are composed of six nuclei (intralaminar, dorsomedial, ventrolateral, ventroanterior, ventroposterior and posterior nuclei). They are vascularized by four major thalamic arteries, each with a predilection for supplying particular groups of nuclei: the tuberothalamic, inferolateral, paramedian and posterior choroidal arteries. Paramedian bithalamic infarctus is caused by the obstruction of a common trunk for the thalamic paramedian artery, unusual anatomic variation of the thalamo-mesencephalic vascularization. Paramedian artery arises from the P1 section of the posterior cerebral artery (also called mesencephalic artery from the bifurcation of the basilar to its junction with the posterior communicating artery), and irrigates paramedian thalamic territories but may occasionally assume tuberothalamic artery territory (absent in one-third of cases). Different anatomic patterns can be observed (Fig. C): paramedian arteries can arise from each P1 (type 1), can arise in pair from one P1 (type 2a) or can arise of a common trunk from one P1 (type 2b), causing bithalamic stroke in case of common trunk obstruction. Paramedian artery and superior mesencephalic artery (irrigating pons and mesencephale) can equally arise from a common trunk, which can lead to dramatic thalamico-mesencephalic stroke. These anatomic variations must be known in order to understand unusual imaging findings.

1. Department of Radiology, Clinique St-Pierre, Ottignies-LLN, Belgium.