

A Calcified Superficial Temporal Artery to Posterior Cerebral Artery Bypass Mimicking Occlusion

Several papers [1-4] have suggested that a unilateral hyperdense middle cerebral artery (MCA) on CT may be the earliest sign of vessel occlusion. We report a case in which a superficial temporal artery (STA) bypass that appeared dense on CT was proved patent by angiography.

Case Report

A 65-year-old man had progressive vertebrobasilar insufficiency, including cerebellar infarction, despite aggressive use of antiplatelet agents (aspirin, dipyridamole) and anticoagulants (heparin, Coumadin). Angiography showed 99% stenosis at the origin of the right vertebral artery and 99% stenosis of the basilar artery proximal to both superior cerebellar arteries. Because the patient's signs and symptoms were refractory to all medical therapy, an STA to posterior cerebral artery (PCA) bypass was performed. A CT scan obtained immediately after surgery showed a high attenuation of the STA-PCA bypass (Fig. 1). This was apparent on bone windows as well, sug-

gesting calcification. Because of clinical concern about occlusion of the bypass, and because of the appearance of the bypass on CT, a cerebral angiogram was obtained immediately after the CT scan. It showed a smoothly marginated, serpentine, but patent, STA-PCA bypass.

Discussion

The radiologic literature [4] has suggested a correlation between a unilateral hyperdense MCA and large infarcts of the MCA territory. Although angiograms were not obtained in all cases, the clinical course and follow-up CT scans seem to support the validity of this early sign of vascular occlusion. The MCA density in such cases is attributed to the increased attenuation of clotted blood compared with flowing blood [5]. In our case, the density of the graft is the result of calcification along the wall of the vessel, not intraluminal thrombus. Subintimal hemorrhage from surgical manipulation was considered, but the angiogram showed a smooth vascular lumen. During the bypass procedure, plaques of calcification were noted along the vessel. Careful review of the CT scans showed calcification of the opposite STA in the subcutaneous tissues as well.

When a hyperdense external to internal carotid artery bypass graft is noted on CT, calcification of the vessel wall as well as occlusion should be considered. Careful windowing of the CT scans may show calcification of the contralateral STA, although angiography remains the standard for evaluating graft patency.

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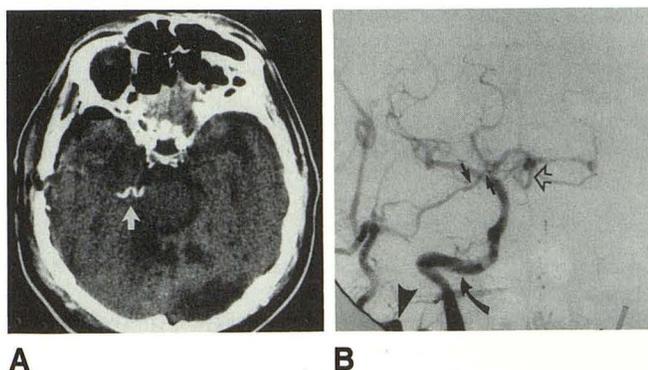


Fig. 1.—Calcified superficial temporal artery (STA) to posterior cerebral artery bypass mimicking occlusion.

A, Axial unenhanced CT scan shows an unusual serpentine density in expected region of distal STA graft (arrow). Cerebellar infarcts are evident, which were present preoperatively.

B, Cerebral angiogram obtained via injection of right common carotid artery shows smooth-walled, patent STA graft (straight solid arrows). Note horizontal segment of internal carotid artery (curved arrow), maxillary artery (arrowhead), and retrograde filling of distal basilar artery (open arrow).

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