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# Basilar Artery Thrombosis Diagnosed by MR Imaging

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# Basilar Artery Thrombosis Diagnosed by MR Imaging

The usefulness of MR in the diagnosis of vertebrobasilar ischemic strokes has been described [1–4]. Changes in signal intensity in neural tissue can be detected as early as 3 hr after ischemic stroke, either on supratentorial or infratentorial lesions [5, 6]. We report the MR diagnosis of two cases of basilar artery thrombosis.

## Case Reports

*Case 1*

Dysarthria, headache, and numbness on the left side developed suddenly in a 70-year-old woman with a history of hypertension, diabetes, and posterior fossa transient ischemic attacks. In 48 hours, the patient became stuporous and had left hemiparesis. On arrival, she was comatose, with pupils in midposition and light-fixed; oculocephalic responses were unobtainable. CT was negative. MR showed lesions in the occipital lobes and in the lower part of the basilaris pontes, hypointense to the normal brain on T1-weighted images and hyperintense on T2-weighted images. Increased signal on T1-weighted images was observed in the basilar artery in axial and sagittal views, compatible with thrombosis or slow blood flow (Fig. 1). The patient died 5 days later. At autopsy, the basilar artery had an organized thrombus and atheroma within its lumen.

*Case 2*

Right hemiparesis, diplopia, and vertigo developed suddenly in a 30-year old hypertensive man. On admission, the patient was conscious, oriented, and dysarthric. Neuroophthalmologic findings were leftward-beating–clockwise rotatory nystagmus, horizontal nystagmus, and horizontal diplopia. The tongue protruded to the right, and the right gag reflex was decreased. Other findings were loss of sensation on the right side of the face, decreased right corneal reflex, left-sided hemihypalgesia, and right ataxic hemiparesis. Blood glucose was 186 mg/dl, and the potassium level was 2.9 mEq/l. All other tests, including CT, were normal. T2-weighted MR images showed areas of increased signal intensity on the right side of the brainstem involving the lower pons and the upper medulla. Sagittal T1-weighted images showed a high-intensity signal within the basilar artery compatible with thrombosis (Fig. 2). After 1 month of treatment, the patient was discharged.

## Discussion

Occlusion of the basilar artery is often fatal [7]; mortality is 2.5 times greater than that associated with occlusion of the carotid system [8]. Diagnosis of this entity usually is accomplished by angiography, which may produce local or systemic complications [9].

As far as we know, this is the first published report of the MR demonstration of occluded basilar arteries. In the first case, axial and sagittal T1-weighted images showed a high-intensity signal within the artery, and the findings at autopsy confirmed thrombosis of the basilar artery throughout its course. In the second case, only the sagittal view revealed a density. This was due to both an absence of flow, which normally would produce a signal void, and to thrombosis, which may produce a short T1.

Under normal conditions, because of the fast blood flow, the intraarterial MR signal is hypointense compared with that of normal brain on both T1- and T2-weighted images. Sluggish flow or thrombosis produces a hyperintense intraluminal signal that forms the basis of clot recognition [10].

Our results suggest that MR could be useful in the evaluation of patients who have suspected thrombosis of the basilar artery.

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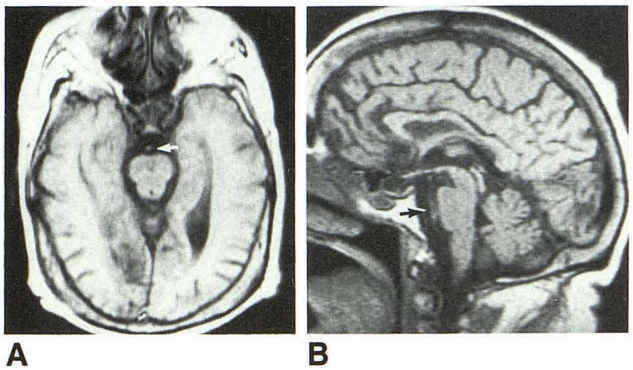


**Fig. 1.—*A* and *B*, Axial (*A*) and sagittal (*B*) T1-weighted MR images, 500/28, show increased signal in basilar artery (*arrow*) and hypointense signal in occipital lobes.**

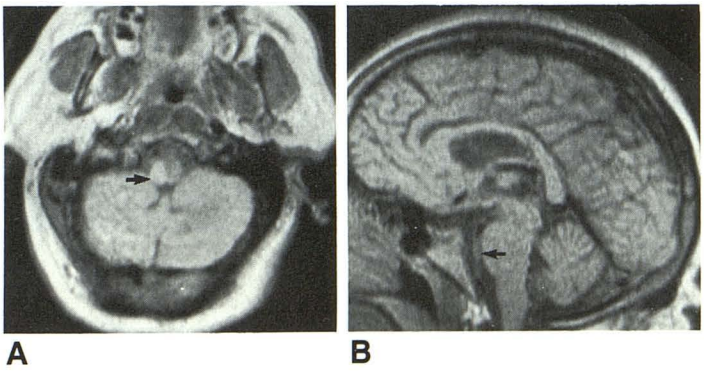


**Fig. 2.—*A*, Axial T2-weighted MR image, 2000/84, shows increased signal intensity in right side of upper medulla (*arrow*).**
***B*, Sagittal T1-weighted MR image, 500/28, shows high-intensity signal within basilar artery (*arrow*).**