AJNR

Cerebral varix associated with a venous angioma.

P Dross, M R Raji and K J Dastur

AJNR Am J Neuroradiol 1987, 8 (2) 373-374
http://www.ajnr.org/content/8/2/373.citation

Cerebral Varix Associated with a Venous Angioma

P. Dross,[1] M. R. Raji, and K. J. Dastur

A patient with hemiplegia was found by angiography and CT to have a venous angioma and a varix of the internal cerebral vein. Although a similar association of these vascular anomalies has appeared previously in the literature [1], the location of the varix in our case is, to our knowledge, unique. The angiography and CT characteristics of these associated abnormalities are described.

Case Report

A 62-year-old woman was admitted to the hospital with aphasia and a right hemiplegia. Two weeks earlier she had been discharged after undergoing triple coronary artery bypass surgery. Her admission CT revealed an area of old ischemic infarction in the left basal ganglionic region, including portions of the caudate, lentiform nucleus, and the internal capsule. An enhancing high-density lesion was also noted in the posterior aspect of the septum pellucidum near the foramen of Monro associated with enlarged feeding and draining vessels (Fig. 1).

At angiography, both carotid arterial phases were normal. The venous phase of the left carotid injection demonstrated a large venous angioma in the left frontal lobe. The vessels comprising the lesion all drained into an enlarged septal vein, which in turn drained directly into a cerebral varix located in the septum pellucidum (Fig. 2). The venous phase of the right carotid angiogram was normal. In particular, the right septal and internal cerebral veins were normal and demonstrated no communication with the varix.

The patient's hospital course was complicated by septicemia of unknown origin and a cardiac arrest, after which she became comatose. Gradual recovery followed. It was decided that her intracranial angioma and varix were nonsurgical lesions, and she was subsequently discharged under conservative treatment.

Discussion

A cerebral varix has been described as a simple dilatation of a vein occurring in either the parenchyma or the leptomeninges of the central nervous system [2]. Of the many classifications of intracranial vascular malformations, McCormick's [3] seems to be the most widely accepted. He classifies vascular malformations of the brain into the following five categories: telangiectasias, varix, cavernous malformation, arteriovenous malformation, and venous malformation or angioma. The origin of intracranial varices is uncertain, but most believe it to be the result of a congenital weakness of the vessel wall [2]. Histologically, there is a large, thin-walled vessel lined with a single layer of endothelium and encircled by a thin layer of fibrous connective tissue. There are few or no muscle fibers or elastic elements in the wall. These lesions tend to be clinically silent, although the most common complication found at necropsy is rupture with hemorrhage, and less commonly, venous thrombosis originating from the varix with a subsequent venous infarct [2]. There is no site of predilection for this lesion, as it may occur anywhere within the brain parenchyma or on its surface. It can even involve the dural sinuses [4]. Angiographic and particularly CT description of this lesion in the literature has been scarce. On CT, the varix appears as a high-density lesion showing marked enhancement after contrast infusion. At angiography, the arterial phase is normal without evidence of arteriovenous shunting. In the venous phase, there is a dilated vein leading into a smooth, round, sac-like structure whose opacification persists into the late venous phase, often with layering of contrast material within it. There is also an associated large vein draining superficially or into the deep venous system. What makes the present case most unusual is its proximity to the foramen of Monro, making the differentiation from a colloid cyst difficult. The key to the CT diagnosis of a vascular malformation in our case is the presence of an enlarged feeding and draining vein (Fig. 1).

A cerebral venous angioma is a more common lesion than the relatively rare cerebral varix, and it has been well described in the literature [5–8]. Although a venous angioma can be visualized by CT, the specific diagnosis cannot be made without angiography [5]. The angiographic arterial phase is normal and the venous phase shows one or more enlarged draining veins. The configuration is frequently one of a radial distribution of venules that drain into a single, large venous trunk [5]. In our case, several prominent veins are arranged in a radial pattern draining into a large vein (Fig. 2), thus demonstrating the more typical pattern of a venous angioma.

The association of a venous angioma with a cerebral varix had not been reported until Meyers et al. [1] described a case

Received January 18, 1985; accepted after revision April 18, 1985.

[1] All authors: Department of Radiology, Section of Neuroradiology, Mercy Hospital, Pride and Locust Streets, Pittsburgh, PA 15219. Address reprint requests to M. R. Raji.

AJNR 8:373–374, March/April 1987 0195–6108/87/0802–0373

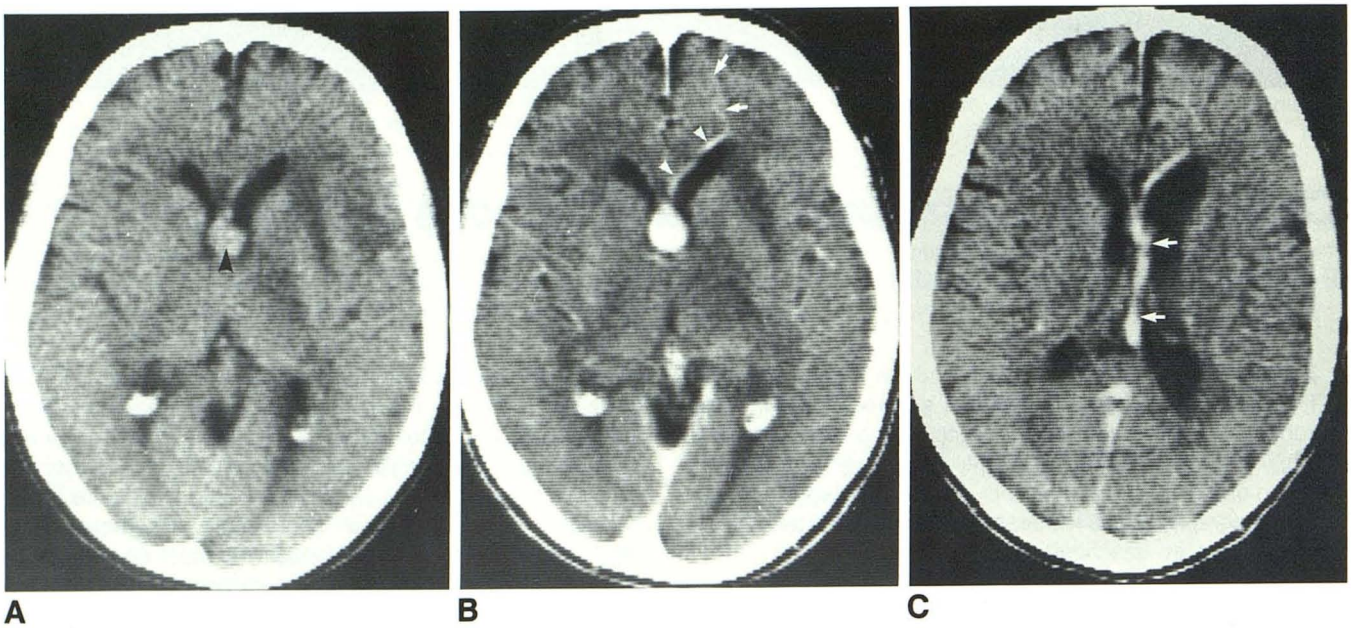

Fig. 1.—*A*, Noncontrast CT scan shows high-density varix (*arrowhead*). Note areas of old infarction involving left frontoparietal and basal ganglionic region.
***B*, After IV contrast infusion, there is marked enhancement of varix. Note venous angioma (*arrows*) draining into left septal vein (*arrowheads*).**
***C*, Section just above that in part *B* shows enlarged, draining, internal cerebral vein (*arrows*).**

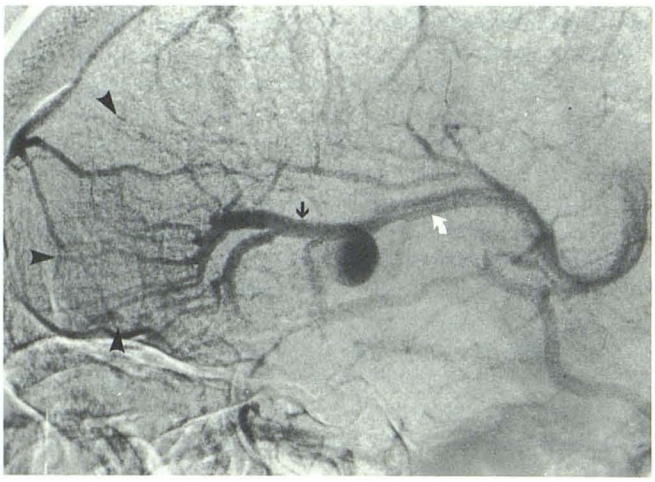

Fig. 2.—Lateral phase of left internal carotid angiogram shows large venous angioma (*arrowheads*) draining into a single large vein (*black arrow*), which drains into varix and subsequently empties into a large internal cerebral vein (*white arrow*).

with several enlarged veins draining directly into a cerebral varix, making his case a probable venous angioma associated with a varix. Our case has both lesions presenting with a more classic appearance. The varix in our case is opacified by and lies on the same side as the venous angioma. For this reason and for the fact that this is the second such case report, we again raise the possibility of an association between these two lesions. However, to our knowledge, the formation of a varix has not been described as resulting from the increased blood flow from a venous angioma. We believe that the diagnosis of a varix can be suggested by CT when a large feeding vein is seen to enter an enhancing, vascular, sac-like lesion. Angiography should then follow to pursue the possibility of an associated venous angioma.

ACKNOWLEDGMENT

We thank Robert Blume and Peter Melotti, the attending physicians and their associates, and Lilia D'Amico for secretarial assistance.

REFERENCES

1. Meyer JD, Baghai P, Latchaw RE. Cerebral varix and probable venous angioma: an unusual isolated anomaly. *AJNR* **1983**;4:85–87
2. Noran HH. Intracranial vascular tumors and malformations. *Arch Pathol Lab Med* **1945**;39:393–416
3. McCormick WF. The pathology of vascular ("arteriovenous") malformations. *J Neurosurg* **1966**;24:807–816
4. Dandy WE. Arteriovenous aneurysms of the brain. *Arch Surg* **1928**; 17:190–243
5. Fierstein SB, Pribram HW, Hieshima G. Angiography and computed tomography in the evaluation of cerebral venous malformations. *Neuroradiology* **1979**;17:137–148
6. Saito Y, Kobayashi N. Cerebral venous angiomas. *Radiology* **1981**; 139:87–94
7. Moritake K, Handa H, Mori K, Ishikawa M, Morimoto M, Takebe Y. Venous angiomas of the brain. *Surg Neurol* **1980**;14:95–105
8. Wendling LR, Moore JS, Kieffer SA, Goldberg HI, Latchaw RE. Intracerebral venous angioma. *Radiology* **1976**;119:141–147