A previously healthy 58-year-old woman suddenly lost consciousness while traveling on a bus. On admission to the hospital she scored 3 on the Glasgow Coma Scale. Computerized tomography scanning revealed acute right-sided subdural and intracerebral hematomas with considerable mass effect and the contrast enhancement pattern raised the suspicion of arteriovenous malformation (AVM) (Fig. 1). The patient underwent digital subtraction (DS) angiography, which disclosed the presence of a parietal dural fistulous AVM and its main feeding vessel, the right middle meningeal artery (MMA), which harbored a saccular aneurysm approximately 4 mm in diameter (Fig. 2). The patient underwent emergency surgery during which the hematomas were evacuated, a ruptured cortical ectatic vein draining into the superior sagittal sinus was excised, and the MMA with the aneurysm was coagulated. The histological report described a ruptured AVM. Immediately postoperatively, DS angiography demonstrated no contribution to the AVM from the right carotid or vertebrobasilar circulation, but new transosseus feeding vessels, which emerged from terminal branches of the contralateral superficial occipital artery. These connections were embolized endarterially and the total occlusion achieved was confirmed on follow-up DS angiography. Clinically the patient made a fairly rapid recovery with left-sided homonymous hemianopsia being the sole permanent deficit.

True meningeal aneurysms are extremely rare, although post-traumatic pseudoaneurysms of the external carotid artery branches are more frequent. There is no documented rupture of an MMA aneurysm, but subarachnoid hemorrhage has been reported secondary to the rupture of a dural branch aneurysm of the ascending pharyngeal artery. This serves as a reminder that all vascular pedicles including the external carotid arteries should be assessed angiographically after subarachnoid hemorrhage, especially when standard four-vessel angiography yields negative results. Most meningeal aneurysms are probably flow related because they have been encountered in association with cerebral, dural, or calvarial lesions. As potential bleeders, however, these aneurysms are recommended to be treated either endovascularly as secondary aneurysms of the cerebral arteries that feed the AVMs or by surgery for the associated lesion.

Acknowledgment

I am indebted to Dr. Pauli Helén for neurosurgical assistance.

References


Manuscript received February 2, 1999; accepted in final form April 22, 1999.

Address reprint requests to: Veikko J. Kähärä, M.D., Department of Radiology, Tampere University Hospital, P.O. Box 2000, FIN-33521 Tampere, Finland. email: vkahara@tays.fi.