Case Reports and Technical Notes

Basilar Aneurysm Associated with Agenesis of the Left Internal Carotid Artery

Case Report

PETER D. MOYES, M.D., F.R.C.S. (CAN)
Department of Surgery (Neurosurgery), University of British Columbia, Vancouver, Canada

A significant tendency for intracranial aneurysms to occur in the presence of other anomalies of the intracranial circulation has been reported. The most common association in my experience has been the finding of an anterior communicating aneurysm with absence or hypoplasia of one proximal anterior cerebral artery. Of 47 anterior communicating aneurysms demonstrated angiographically, 12 had absence or hypoplasia of one proximal anterior cerebral artery. In five cases the left anterior cerebral artery was hypoplastic or absent and in seven cases the right was involved. Five cases were men and seven were women.

Lhermitte, et al., have reported the case of a 63-year-old woman with hypoplasia of the left internal carotid artery, demonstrated angiographically on more than one occasion. However, the patient had had a subarachnoid hemorrhage, and, at postmortem examination, an aneurysm at the junction between the anterior communicating and right internal carotid arteries was found to have been the source of her hemorrhage. Others have reported cases of agenesis or hypoplasia of one or the other internal carotid artery, in several of which anterior communicating aneurysms were found; in fact, subarachnoid hemorrhage had been the reason for cerebral angiography.

Wissinger, et al., reported the absence of a vertebral artery in association with a basilar aneurysm. Jamieson reported 28 patients with aneurysms of the vertebrobasilar system, and Drake reported 14 cases of basilar aneurysm. Neither in theirs or other reports of basilar aneurysms have I found any reference to the association of a basilar aneurysm with agenesis of a carotid artery.

Received for publication August 27, 1968.

FIG. 1. Left carotid angiogram, lateral (left) and anteroposterior (right) views, showing filling of the external carotid but not the internal carotid.
Case Report

This 37-year-old housewife had been in good general health until March 25, 1965, when she suddenly collapsed and became unconscious. She seemed to have a left hemiplegia, and when she was conscious the next day she complained of severe headache. She continued to improve and was transferred to Vancouver General Hospital on March 28, 1965. Her past and family histories were non-contributory.

Examination. On admission she was alert and oriented, complained of headache, had a stiff neck and a mild left hemiparesis. Her blood pressure was 100/70. On March 29, angiograms showed good filling of the left external carotid artery but no filling of the internal carotid (Fig. 1). Right carotid injection showed opacification of the right internal carotid and middle cerebral arteries and both anterior cerebral arteries, with long lateral extensions of branches of the left anterior cerebral artery reaching part of the area normally supplied by the left middle cerebral artery (Fig. 2). In these studies no aneurysm was seen. On March 31, the left common carotid angiogram was repeated with results similar to those of the previous study. A left cut-down retrograde brachial arteriogram was then carried out, which showed a midline aneurysm, $2 \times 1.5$ cm, that appeared to arise from the basilar artery by a neck or artery 5 mm long. Branches of the left posterior cerebral artery were seen to extend laterally to the remaining area normally supplied by the left middle cerebral artery (Fig. 3).

Operation. On April 2, 1965, the patient was anesthetized and cooled to a temperature of 28.5°C; the carotid and vertebral arteries were exposed in the neck. Because it was felt that patency of the right carotid artery was of such importance, an approach

---

Fig. 2. Right carotid angiogram, anteroposterior view, showing lateral extension of branches of the left anterior cerebral artery.

Fig. 3. Left vertebral angiogram (retrograde brachial), lateral (left) and anteroposterior (right) views, showing a large aneurysm arising from the basilar artery. Faint opacification of one anterior cerebral artery can be seen and some lateral extension of branches of the left posterior cerebral artery.