Giant intracranial aneurysm

Case report

ZBIGNIEW POLIS, M.D., JERZY BRZEZIŃSKI, M.D., AND MARIA CHODAK-GAJEWICZ, M.D.
Neurosurgical Department and Radiological Department, Medical Academy, Łódź, Poland

Giant aneurysms are rarely reported in the literature concerning intracranial aneurysms, and even rarer are aneurysms whose course indicates an intracranial rather than vascular lesion. We are presenting a case with both of these features, which also demonstrates the inadequate correlation between angiographic and operative findings.

Case Report

An 18-year-old boy developed symptoms over a 3-month period of an intracranial space-occupying lesion, including defective vision. He was admitted to the neurosurgical department a few days after his first generalized epileptic seizure.

Examination. The neurological examination showed exaggerated reflexes of the left extremities and transitional dilatation of the right pupil. The visual acuity of the right eye was diminished to 6/18, but the perimetric examination of the field of vision disclosed no defects, and the fundus was normal. The pulse rate and arterial blood pressure were normal. The electroencephalogram (EEG) revealed delta waves with distinct preponderance in the right frontoparieto-temporal region. The skull films showed a ring-shaped calcification about 3.8 cm in diameter above the sella turcica on the right side (Fig. 1). Right carotid angiography in the Towne and oblique projections disclosed in the suprasellar region a large roundish accumulation of contrast medium about 2.1 cm in diameter corresponding to an aneurysm that seemed to be connected by a peduncle to the internal carotid artery at the site where the posterior communicating artery was branching off (Fig. 2). Radiograms made in the lateral projection also revealed a marked straightening of the siphon of the carotid artery and an upward displacement of the middle cerebral artery. Left carotid angiography showed a normal arrangement of blood vessels.

Operation. The operation was performed by a temporal approach under neuroleptanalgesia, normothermia, and normotension. After incision of the dura mater and resection of a thin cortical layer of the temporal pole, a nodular formation 7.3 cm became visible in the anterior and central parts of the temporal region. The internal carotid artery was displaced upward by a fragment of the aneurysm, compressing the right optic nerve. A wide pulsating peduncle of the aneurysm was found posterior to the carotid artery at the origin of the posterior communicating artery. A ligature was put around the peduncle, and then the whole aneurysmal pouch was
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Fig. 1. Plain skull film in lateral projection showing a calcification focus.

isolated. The medial aspect of the aneurysm consisted of a pulsating sphere the size of a ping-pong ball, whereas its posterior and lateral aspect were composed of a solid and hard nonpulsating tumor. Before tightening the ligature, the cartilage-like aneurysmal wall was pierced with a knife; this caused only moderate bleeding, without marked flaccidity or collapse of the mass. The ligature was then tightened; during this procedure the lumen of the carotid artery became 25% narrower. The aneurysm was cut off at its base and totally removed. The interpeduncular fossa, which had previously been filled with aneurysm, was now free, and the brain-stem structures returned to their normal position. Histopathological examination showed that the aneurysmal wall was composed of the fibrous connective tissue with calcifications, inflammatory infiltrations, and an adhering mural thrombosis (Fig. 3).

Postoperative Course. Recovery was complicated during the first 24 hours by left-sided jacksonian fits; these did not recur. Paralysis of the right oculomotor nerve and slight left-sided homonymous upper-quadrantopia also appeared. The neurological state was otherwise the same as before operation. The patient displayed full motor function and moved about without difficulty; his headache almost completely disappeared. The postoperative EEG showed distinct improvement, with only slight pathological changes in the frontotemporal leads on the right side. Repeat right carotid angiography revealed amputation of the segment of the internal carotid artery peripheral to the site of the aneurysmal insertion (Fig. 4). During angiography of the left carotid artery it was found that the branches of the right carotid artery filled via the anterior communicating artery. The ligation of the base of the aneurysm had probably led to stenosis of the carotid artery, impairing its patency, fortunately without any neurological deficits.

Fig. 2. Preoperative right carotid angiography. Left: Towne projection. Center: Oblique projection. Right: Lateral projection showing a fragment of the aneurysm and upward displacement of the middle cerebral artery which was misdiagnosed as hematoma.