CEREBRAL ANEURYSMS WITH OTHER INTRACRANIAL PATHOLOGY

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Subdural and intracerebral hematomas are recognized surgical lesions which may accompany a rupture of cerebral aneurysm. The incidence of multiple cerebral aneurysms has been reported between 9 and 21 per cent in large series of cases of this disease.14 Congenital anomalies elsewhere in the body are known to occur with cerebral aneurysm, such as coarctation of the aorta and polycystic kidney. In a study of 250 consecutive adult patients in our series who had cerebral angiography, cerebral aneurysms were found in 3 patients who had independent cerebral lesions which included an arteriovenous aneurysm, cerebral cyst and a cerebral hematoma. The diagnostic problems associated with these latter combinations are illustrated.

CASE REPORTS

Case 1. A 50-year-old white male was treated in another hospital 4 months prior to admission for arterial insufficiency with ischemic neuropathy of both lower limbs. Aortography, lumbar sympathectomy, aortic thrombectomy, and four attempts at vascular grafting of aorta, left external iliac or left common femoral arteries were performed. Operations were complicated by infection and rupture of grafts and the development of gangrene of the lower extremities requiring amputation at the thigh on the left leg and below the knee on the right leg.

Physical findings were normal except for the amputated lower extremities and a granulating ulcer on the stump of the left thigh. Two weeks after application of a split-thickness skin graft to the stump of the left thigh, there was elevation of the patient’s temperature with physical signs of congestion of the right lung. He was afebrile after treatment for 4 days with tetracycline, 250 mg. 4 times a day, when he had a grand mal seizure, became comatose and had a left hemiplegia. Lumbar puncture revealed grossly bloody spinal fluid.

Right carotid angiogram† revealed a 3 mm. aneurysm on a branch of the right callosal marginal artery (Fig. 1). Elevation of the right middle cerebral artery was not recognized in the initial study of the angiogram.

Twelve hours after the onset of coma, the aneurysm, which measured 1×0.8 cm., on the right callosal marginal artery was excised by right frontal craniotomy. Although subarachnoid hemorrhage was present in the operative area, signs of rupture of this aneurysm were absent. Internal decompression of the tip of the right frontal lobe was performed to alleviate edema of the brain.

† Angiograms were made in all cases by the percutaneous technique using injections of 10 cc. of 50 per cent Hypaque Sodium.

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The patient expired 3 days after surgery. Pathological diagnosis of the surgical specimen was berry aneurysm of cerebral artery.

Necropsy disclosed subarachnoid hemorrhage over the cerebral hemisphere and base of the brain. A surgical defect, which measured 3 cm. in diameter, was present in the right frontal lobe. An independent intracerebral hematoma, which measured 5 cm. in greatest diameter, extended from the right Sylvian fissure into the anterior portion of the putamen and caudally into the posterior parietal lobe. Microscopic study of this hematoma revealed areas which sometimes contained small central masses of fibrin and a few segmented neutrophils. One artery from the clot had subendothelial infiltration with segmented neutrophils. All three leaflets on the ventricular surface of the aortic valves contained red-brown, large clot. Microscopic sections of the aortic valve revealed fibroblastic proliferation of the valve leaflets, large attached clot which showed early organization, and multiple clumps of bacteria.

Principal pathological diagnoses were: acute bacterial endocarditis of aortic valve; acute arteritis of cerebral vessel; subarachnoid and intracerebral hemorrhage; berry aneurysm (surgical specimen) of cerebral artery; cerebral edema; arterial homografts of abdominal aorta, iliac arteries, and right femoral artery.

Case 2. A 33-year-old right-handed male had been hospitalized on several occasions elsewhere during the year prior to admission for severe headache, loss of consciousness, and intermittent blindness in the left field of vision. He was admitted after a transient period of unconsciousness.

On admission neurological findings were within normal limits except for nuchal rigidity. Lumbar puncture revealed grossly bloody spinal fluid. Right carotid angiogram demonstrated nonfilling of the right anterior cerebral artery and visualized a right occipitoparietal arteriovenous aneurysm filled from the middle cerebral