ANEURYSMS OF THE MIDDLE CEREBRAL ARTERY
REPORT OF SEVEN OPERATIVE CASES; REVIEW OF LITERATURE;
EVALUATION OF SURGICAL THERAPY

DANIEL PETIT-DUTAILLIS, M.D.,* AND HAL W. PITTMAN, M.D.†
Department of Neurological Surgery, Hôpital de la Pitié, Paris, France
(Received for publication August 2, 1954)

INTRACRANIAL arterial aneurysms are not a homogeneous group, and it has recently become apparent that any report dealing with their treatment must consider them according to their location. Since aneurysms of the middle cerebral artery constitute approximately 30 per cent of all intracranial arterial aneurysms14 and since they present a particular challenge to the neurosurgeon, we thought it appropriate to present our own experience with these aneurysms and to analyze the material published by others.

It cannot be disputed that intracranial aneurysms are serious lesions. A patient entering the hospital with a subarachnoid hemorrhage has roughly a 50 per cent chance of survival without surgical treatment, and of those discharged, about one fourth die of recurrent hemorrhage and one fourth remain disabled.9,12,15

CASE MATERIAL

The case material, which is summarized in Table 1, represents all the patients with aneurysm of the middle cerebral artery admitted to the neurosurgical service of the Hôpital de la Pitié since its foundation. With one exception, Case 1 operated on in 1946, all the patients postdated the reorganization of the neurosurgical service in 1948 by the senior author. Nine patients were operated upon; 7 of these had obliteration of the aneurysmal sac, and the other 2 were subjected to evacuation of the hematoma only. The surgical procedures were carried out by the senior author or one of his assistants (Dr. G. Guiot, Dr. J. Pecker, Dr. Y. LeBesnerais, Dr. J.-C. Clément). One patient was discharged without operation, and 2 others died before surgery.

Obliteration of Aneurysm. Seven patients were treated in this fashion. Time intervals between the most recent subarachnoid hemorrhage and operation were 2 months, 36 days, 12 days, 3 months, 1 day, 22 days, and 2 days. Hypotension in the neighborhood of 60 to 80 systolic by the use of vasodepressor drugs was employed in all but the first case. In 5 instances, the base of the aneurysm was occluded by one, sometimes two, clip(s), and in another

* 12, Avenue Lowendal, Paris VII, France.
† Foreign assistant in Neurosurgery, Faculté de Médecine, Paris. Present address: 102 Walnut Street, Fairmont, North Carolina.
by a silk suture. One aneurysm was not pedunculated and required a row of clips across the dome. An intracerebral hematoma of sizable proportions was evacuated in 3 instances and a subdural hematoma in 1.

Transient contralateral hemiplegia appeared during the course of the operation in 2 instances. In Case 6 this was presumably caused by spasm because it regressed after vasorelaxation and in Case 4 by impairment of circulation through the parent artery because it immediately disappeared after a higher placement of the clip on an arteriosclerotic aneurysm.

**Case 1.** (Aneurysm clipped; well 8 years later.)

H.C., 21-year-old female, was admitted to the Hôpital de la Pitié May 28, 1946 with severe generalized headache for 1 month, and diplopia and ptosis of the right eyelid for 3 weeks.

Examination revealed only a complete right oculomotor nerve paralysis. Spinal fluid was yellow. Arteriogram revealed a small aneurysm near the bifurcation of the right internal carotid artery.

At craniotomy (Dr. G. Guiot) 2 months after hemorrhage the aneurysm was seen to arise from the middle cerebral artery, and a single clip was placed on its base. Arterial bleeding began immediately and was controlled by packing the operative field with gelfoam.

The postoperative course was uneventful, the 3rd nerve lesion regressing completely. The patient was in perfect health 8 years after the operation and had married and given birth to three children.

**Case 2.** (Aneurysm clipped; postoperative extradural hematoma; death 64 days after operation.)

M.D., 28-year-old female, had sudden severe headache for one hour on Nov. 19, 1952 and similar sudden severe headache 6 days later associated with coma for 6 hours, generalized convulsions, projectile vomiting, meningeal signs, and bloody CSF. Improvement followed, but another attack of headache, coma and convulsions occurred December 12.

Arteriogram at the Pitié revealed an 8-mm. aneurysm of the left middle cerebral artery 2 cm. from its origin.

At operation (Dr. Petit-Dutaillis) 36 days after the second subarachnoid hemorrhage, a liquefied subdural hematoma was evacuated and the aneurysm was clipped with a single silver clip at the base, with the B.P. reduced to 90 systolic by ganglioplegics.

Immediately after the procedure the patient was completely lucid and talking