SURGERY OF CEREBRAL HEMORRHAGE
REPORT ON THE RESULTS OF 52 SURGICALLY TREATED CASES
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Conservative medical therapy, advocated for the cure of cerebral hemorrhage, can affect only the cerebral edema and the neurovegetative disorders. Direct surgical attack is the treatment of choice: it frees the brain from compression by the collection of blood.

The present report concerns only those cases in which the hemorrhage is the chief lesion. It does not include cases in which the intracerebral bleeding is the result of trauma, or tumoral growths, or is secondary to vascular malformations.

In some instances it may be difficult to identify a tumor, an aneurysm or an angioma by arteriography, or even in the course of an operation, when the first symptom to have appeared was the hemorrhage itself.

The progressive course of the surgical management of cerebral hemorrhage extends over three periods. The first period was marked by rare isolated studies. Cushing in 1903 drew attention to the importance of the edema surrounding the apoplectic lesion; he emphasized the part played by compression on the nerve fibers, more harmful than laceration. Lewandowsky and Stadelmann as early as 1908 discussed the surgical indications and the appropriate operative time.

The second period opened 25 years later with the work of Bagley. This author identified the type of cerebral hemorrhage that would tend to be benefited by surgical treatment. He described most of the clinical and anatomical features: signs of intracranial hypertension, temporo-occipital localization, and surgical intervention within the second week after onset. In spite of all that, surgical management of cerebral hemorrhage for the next 10 to 15 years was a hazardous enterprise, subject to exceptional indications. Only occasional cases of patients treated surgically were published.

About 1945, cerebral hemorrhage was the subject of numerous valuable publications, especially on the part of Lhermitte, Guillaume, David and their co-workers in France, and Hamby in the United States. Reports of series of patients treated by surgery confirmed the real value of operative measures. Electroencephalographic and angiographic techniques contributed to the study of the etiological background and of the localization.

Today the treatment of cerebral hemorrhage is regarded as highly important in neurosurgical practice. It was the subject of discussion at the

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Congress of the Society of Neurosurgery of French-speaking countries held in 1956, and at the Latin-American Congress of Neurosurgery held in 1957.

Comments on some of the anatomical, clinical, electrical and arteriographic features are necessary so as to weigh the surgical indications and technics.

I. NOSOLOGICAL CONSIDERATIONS

The distinction between cerebral hemorrhage and cerebral hematoma is not as clear-cut as was indicated after the report of Bagley. Nor is the distinction evident from etiologic, pathogenetic or anatomical points of view.

(1) It has been stated that cerebral hemorrhage occurs in elderly hypertensive-arteriosclerotic patients, whereas cerebral hematoma was met with in a relatively younger age group, presenting no significant signs of arteriosclerosis, but affected by some vascular anomaly. In fact neither the etiology nor the pathogenesis can be considered as sound criteria for differentiation.

Leaving aside the general causes of hemorrhage, such as endocarditis, arteritis, and hemorrhagic diathesis—which are quite apparent—the rupture of an artery appears in three categories of etiological circumstances. Each category covers about one-third of all cases reported in medical statistics, as well as in series of published surgical cases.

It occurs either in a patient in his fifties suffering from high blood pressure; or in a younger person presenting a vascular malformation; or even in the absence of known causative factors. As far as the last group is concerned a number of predisposing causes have been postulated: small macroscopic tumors, small angiomatous malformations, and fragility of blood vessels.

(2) It has been said that cerebral hemorrhage is deep-seated and infiltrates the brain, whereas cerebral hematoma is located in a cerebral lobe. In fact the starting point of the bleeding is no proof in favor of the type of the lesion.

In our opinion hemorrhage takes its source more often from the central or capsulostriate blood vessels, and what is of most significance is the extravasation of blood towards the cortical centers or within the white matter of the brain at the junction of central and peripheral arterial territories.

The classical type of capsular hemorrhage is often fateful, for it tears the internal capsule, compresses the diencephalic centers and may invade the ventricles of the brain.

From the internal or external capsule the hemorrhage may extend into the white matter of the cortex: in the frontal or in the temporal lobes; more frequently in the parieto-occipital region (Fig. 1). It collects itself into a hematoma, and compresses more than it damages the brain. It can be evacuated by operation.

The parieto-occipital location of the hematoma in the region proximal to the ventricle is by far the most frequent (Fig. 2); it accounts for nearly 75 per cent of our cases.