SUCCESSFUL TREATMENT OF AN ANEURYSM OF THE ANTERIOR COMMUNICATING ARTERY

Emilio Ley, Jr., M.D.*
Madrid, Spain

(Received for publication December 1, 1955)

Among the various types of intracranial aneurysms, saccular aneurysms of the anterior communicating artery deserve special consideration. Because of their location at a crucial point of the circle of Willis, rupture is particularly dangerous and treatment is hazardous. A review of the literature reveals that relatively few instances of aneurysms in this location have been successfully treated. By “successful” I mean that not only is good recovery obtained after one or several subarachnoid hemorrhages have occurred but subsequent bleeding is avoided. This can be accomplished with certainty only by the complete isolation of the aneurysmal sac from the blood stream. Two procedures assure this goal: one is to occlude with clips or tie the neck of the aneurysm with a silk ligature, and the other is “trapping” of the aneurysm. For aneurysms of the anterior communicating artery, the procedure of “trapping” seems very difficult, as pointed out by Poppen11 among others, because the artery is extremely short. Ligature of the neck of the aneurysm undoubtedly is the ideal method, as Norlén8,9 has recently stressed. His reports indicate that the neck can be clipped in quite a number of cases, disproving previous ideas that this procedure is almost impossible.

In a survey of the pertinent literature, 39 cases of aneurysm of the anterior communicating artery treated by the intracranial approach were found in which detailed description was given of the procedure performed.1,7,10,13 In 4 of the 39 cases the operation was limited to exploration of the lesion or evacuation of an intracerebral hematoma; the aneurysm itself was not treated.6,10 I have not included in the 39 cases 8 patients in whom both anterior cerebral arteries were occluded; 5 of the 8 died and the condition of 2 who recovered remained severely impaired.4,6 These cases were excluded because the extensive procedure unquestionably was performed under unexpected circumstances as a life-saving measure. Thirty-five of the 39 patients were treated by all the known methods but in only 23 cases was a definitive procedure accomplished. Eighteen of these 23 cases were reported by Norlén: in 17 the neck of the aneurysm was ligated with 1 casualty, and in 1 “trapping” was performed, resulting in death. Of the remaining 5 patients, 2 died (2 of these patients had ligatures of the neck of the aneurysm, 2 ligatures of the neck combined with clipping of one anterior cerebral artery and 1 “trapping”1,3,6).

Steelman et al.12 did not report any case of aneurysm of the anterior communicating artery in their series of 42 lesions operated upon intracranially. Poppen11 stated that in not a single case of aneurysm in this location was the neck of the aneurysm suitable for insertion of a clip.

* Fernando el Catolico, 14, Madrid, Spain.
ANEURYSM OF ANTERIOR COMMUNICATING ARTERY

It has recently been emphasized that a more detailed description must be given in all cases of intracranial aneurysms reported; various factors (location, time of operation, existence of hematoma, and so forth) that may influence the final outcome should be included. For this reason it seems worth while to report a single case of aneurysm of the anterior communicating artery successfully treated by direct intracranial attack. It is our only experience with the intracranial approach for saccular aneurysms.

CASE REPORT

A 34-year-old man was admitted to the hospital on April 18, 1955. He had had short episodes of unconsciousness, presumably convulsions, since the age of 18 years. Three weeks before admission, the patient felt dizzy, fell, and was unconscious for about half an hour.

The episode occurred just after defecation. He had had severe headaches and vomiting for a few days and then had begun to improve. About a week later he was able to get up and walk around, although mild headaches still remained. The day before admission, a similar episode took place. He was unconscious for about 30 minutes; when he regained consciousness he had a severe headache and vomiting occurred.

Examination. The patient appeared to be acutely ill. He was drowsy and complained of constant headaches. The only neurological abnormalities were nuchal rigidity, and a positive Oppenheim's sign on the left. The blood pressure was 120 mm. systolic and 60 mm. diastolic. The pulse rate was 56 and temperature 37.3°C. A lumbar puncture revealed bloody cerebrospinal fluid.

Course. Arteriograms of both carotid arteries were made the following morning while the patient was under Pentothal anesthesia. A small saccular aneurysm arising from the anterior communicating artery was visualized in both the lateral (Fig. 1) and the anteroposterior ex-