A Successful Surgical Case of Multiple Giant Aneurysm on a Single Cerebral Artery

—A Case Report—

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Received for publication January 8, 1986

Summary: It is rare to find a patient who has four aneurysms on cerebral arteries. We have recently encountered a case who has four aneurysms on a single cerebral artery, presenting two giant and two smaller aneurysms on the right middle cerebral artery. In this paper a successful surgical therapy for the multiple giant aneurysm on a single cerebral artery is described.

Key words: cerebral aneurysm—giant aneurysm—middle cerebral artery—subarachnoid hemorrhage—multiple aneurysm

Introduction

It is rare to find a patient who has four aneurysms on cerebral arteries, since the incidence of such multiple aneurysms is said to be about 20% among aneurysm patients (Drake, 1979). Even more rare is to have a patient who has four aneurysms on a single cerebral artery. We have recently experienced such a case, presenting two giant and two smaller aneurysms on the right middle cerebral artery (MCA). Below is the description of our observations with CT scan and angiography as well as of the surgical approach to the treatment of this patient.

Case

The patient was a right-handed 32 year-old male. While engaging in sexual activity, he developed sudden severe headache and lost consciousness. At the time of admission, he regained consciousness but complained of severe headache. No apparent neurological impairment was detected. Subarachnoid hemorrhage was diagnosed. There was no particular case history in his family including himself. Diagnostic Observations:

CT scan: CT scans indicated subarachnoid hemorrhage dominantly in the right sylvian fissure. No sign of intracerebral hemorrhage or of hydrocephalus (Fig. 1).

Angiography: From the anteroposterior view of the right carotid angiography, only two aneurysms were able to be seen on the right MCA. However, two additional aneurysms were found on the same artery from a lateral view. Thus, there were four aneurysms all together on this artery (Fig. 2-a, b).

Clinical signs: Based on the clinical
signs of clear consciousness and headache without apparent neurological deficit, his condition was diagnosed as Grade I ac-

![CT scan](image1)

**Fig. 1.** CT scan shows a high density in the right sylvian fissure and vallecula to basal cistern.

cording to Hunt and Kosnik's surgical scales.

Because of the diagnosis and considering the patient's young age, we decided to proceed on him immediately.

**Surgery and Related Observations**

We carried out surgery with left frontotemporal cranioplast craniotomy and reached the aneurysms on a trans-sylvian approach. There was a giant aneurysm on the common temporal artery whose size was $3.5 \times 2.5$ cm. It required two Sugita clips (clip No. 15, 18) for clipping its neck. Another giant aneurysm, $2.5 \times 2.5$ cm, which was located on the true bifurcation of MCA, was also clipped (No. 12). Since we found that the two thirds of the latter aneurysm were filled with thrombus, this portion was removed. The two other smaller aneurysms on the ascending frontal and on the parietal artery (Fig. 3), were also clipped.

![Anteroposterior view and lateral view of right carotid arteriography](image2)

**Fig. 2.** Anteroposterior (a) and lateral view (b) of right carotid arteriography show two giant and two small aneurysms in right MCA (arrows).
**Post-operative observations**

Post-operative angiography revealed that there was a tapered occlusion in the proximal portion of the true bifurcation of MCA. We believed that it was caused by angiospasm.

Since there was enough back flow from collateral circulatory systems, mainly from the right anterior cerebral artery, the right MCA was found to be carrying blood with delayed phase.

The patient was discharged two months later without any apparent neurological problem and returned to his previous job. His working ability was not reduced at all despite the operation.

**Discussion**

As stated in the introduction, the occurrence of multiple cerebral aneurysm of four is rare and has been reported to be 1.4% by Locksley (1966). The possibility of four aneurysms appearing on a single artery would be even more rare.

A recent view to operate at once on such multiple aneurysms has been generally accepted. We have also conducted one stage surgery for this patient and obtained an excellent result as mentioned above.

However, a good post operative prognosis after clipping the neck of a giant aneurysm may not be always expected. Thus, it would be strongly recommended to proceed the operation with caution and to be ready for the possible occurrence of angiospasm with STA-MCA anastomosis and/or induced hypervolemic hypertension.

**References**
