INTRODUCTION

Intracranial dissecting aneurysms are rare, however they have been reported more frequently in recent years and are recognized as a cause of stroke. Spontaneous dissecting aneurysms (SDAs) of the intracranial carotid circulation are less common than those of the vertebrobasilar circulation. SDAs of the middle cerebral artery (MCA) occurring in younger people most often present as occlusive syndrome with ischemia, although subarachnoid hemorrhage (SAH) can also occur. We report a case of SAH that occurred subsequent to a ruptured dissecting aneurysm of the MCA which resolved spontaneously as demonstrated by angiography.

CASE REPORT

A 25-year-old woman with loss of consciousness and left hemiparesis was admitted to a local clinic. Upon admission, she was diagnosed as being a 12 on the Glasgow Coma Scale. Computed tomography (CT) obtained on admission revealed subarachnoid hemorrhage (Fisher grade 1) in the region of the right Sylvian fissure and intracranial hemorrhage in the right frontal lobe (Fig. 1) at a Hunt and Hess grade of 2. An emergency angiography revealed a non-saccular aneurysm of the M2 portion unrelated to the branching zone of the right MCA (Fig. 2), while the other vessels were normal. She could not remember having sustained any traumatic injury. She experienced a severe headache for 5 days prior to her admission, but it had subsided. Following admission, she was treated for two weeks, and was then transferred to our hospital for further evaluation and management. A repeated CT scan showed a subacute stage hematoma in the right frontal lobe. A CT angiography revealed no aneurysm in the right MCA M2 branch. Extensive laboratory studies, including screening for hematologic, coagulative, metabolic, vasculitic, and neoplastic disorders, were unremarkable. Transthoracic and transesophageal echocardiography revealed no abnormalities, including cardiac disease and bacterial infections associated with endocarditis. The most likely etiology was thought to be a dissecting aneurysm.

A repeat angiography was performed three weeks after the onset of the patient’s illness. The branches of the right MCA...
were narrowed, which was interpreted as a result of spasms due to hemorrhage. No aneurysm was noted in the previous aneurysm site of the right MCA (Fig. 3). Rehabilitation was started, and the left hemiparesis slowly improved. The patient recovered uneventfully. A follow-up CT scan performed 40 days after the onset of disease showed a subacute stage hematoma in the right frontal lobe. Over the next three years, the patient was symptom-free. A follow-up magnetic resonance imaging obtained 3 years later revealed encephalomalatic change in the right frontal lobe with hemosiderin deposition (Fig. 4).

**DISCUSSION**

Most dissections of the carotid and vertebral arteries heal...
Spontaneous dissection of extra- or intracranial vessels have been reported to be related to many conditions, including Marfan's syndrome, fibromuscular dysplasia, atherosclerosis, and Moyamoya disease. However, a non-traumatic spontaneous dissecting aneurysm of the MCA is rare. These dissecting aneurysms present as either ischemic attacks or as subarachnoid hemorrhages (1). Angiographic studies can provide a definit-
Ruptured Dissecting Aneurysm of the Middle Cerebral Artery with Spontaneous Resolution

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Ruptured dissecting aneurysm of the middle cerebral artery with spontaneous resolution

In our case, there was an aneurysmal dilatation in which contrast persisted in a later stage on angiography, and also allowed us to develop the diagnosis. However, the patient was treated conservatively for two weeks at a local hospital, and then transferred to our hospital. A follow-up angiography performed three weeks after onset of illness demonstrated resolution of the dissecting aneurysm and residual stenosis. This spontaneous aneurysm resolution may be responsible for neointimal formation in the ruptured portion of the vascular wall as a healing process (7).

Spontaneous intra-aneurysmal thrombosis is a well-documented phenomenon that has been noted in approximately 50% of giant intracranial aneurysms. In an aneurysm with a relatively small neck, as in our case, the ratio of the aneurysmal volume to aneurysmal neck size would contribute to thrombus formation within the aneurysm, although other biophysical and hemodynamic parameters also contribute to thrombogenesis (9). Thrombosis in the margin of the pseudolumen is usually detected on angiography as stenosis, as in our case (3).

It was agreed that surgical treatment such as wrapping or trapping with artery reconstruction may be the appropriate management for a MCA dissecting aneurysm in the presence of SAH. However, indications and the timing of surgical treatment for a ruptured dissecting aneurysm of the MCA have not yet been established, because of the perceived ambiguity regarding the natural history of ruptured dissecting aneurysms of the MCA. However, early surgical obliteration of the parent artery to prevent re-bleeding is essential in a dissecting aneurysm with subarachnoid hemorrhage such as re-bleeding, increases the chance of death (6, 7, 9).

We believe that a dissecting aneurysm may be one of the important causes of SAHs of unverified origin. Although bleeding is an uncommon presenting sign of an SDA, it should be included in the differential diagnosis when a saccular aneurysm is excluded in patients showing subarachnoid or intracerebral hemorrhage.

REFERENCES