Cerebral Infarct Due to Concomitant Anterior Cerebral Artery Dissection and Dissecting Aneurysm

Fu-Yu Lin[1] and Bang-Bin Chen[2]

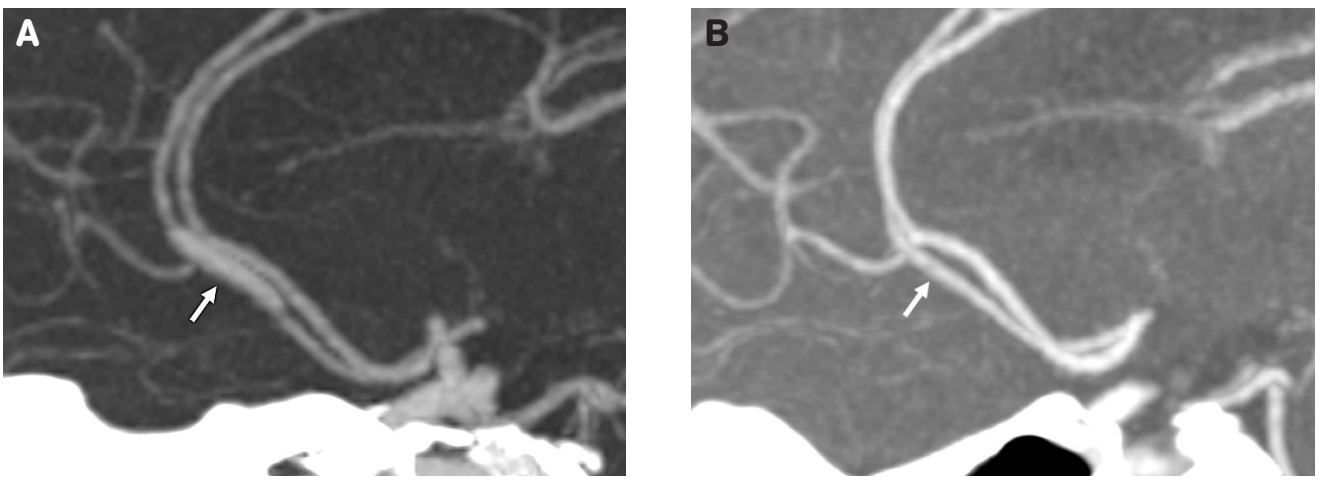

Figure. (A) The CT angiography revealed a fusiform aneurysmal dilatation (arrow) in the right A2 segment of the anterior cerebral artery. (B) The follow-up CT angiography 1 year later showed resolution of the dissecting aneurysm.

A 51-year-old man with hypertension and dyslipidemia developed acute-onset dizziness while riding a bike but was able to return home without assistance. He was brought to our emergency department 2 hours later by his family because his speech was slurred and he was dragging his left leg. On arrival, the patient reported light-headedness and left-sided clumsiness but denied having a headache. There was no recent history of trauma. His vital signs were temperature, 36.6˚C; pulse rate, 79 beats per minute, respiration rate, 15 breaths per minute; blood pressure, 185/115 mmHg. Neurological examination revealed normal level of consciousness and orientation but relatively slow responses, dysarthric speech, and mild left-sided weakness, especially in the lower extremity. A Foley catheter was inserted several hours later because of urinary retention. The brain CT scan taken immediately showed no abnormality. However, the follow-up CT scan with CT angiography carried out on day 7 revealed a low-density area in the right anterior cerebral artery (ACA) territory and a focal irregular narrowing (stenosis-dilatation-stenosis pattern) in the A2 segment of right ACA. Consequently, right frontal lobe infarct caused by concomitant arterial dissection and dissecting aneurysm in the A2 segment of

From the [1]Department of Neurology, National Taiwan University Hospital Yun-Lin Branch, Yunlin, and [2]Department of Medical Imaging, National Taiwan University Hospital, Taipei, Taiwan.
Received May 22, 2009. Revised June 1, 2009.
Accepted July 3, 2009.

Reprint requests and correspondence to: Fu-Yu Lin, MD. Department of Neurology, National Taiwan University Hospital Yun-Lin Branch, No. 579, Sec. 2, Yunlin Rd., Douliou City, Yunlin County 640, Taiwan.
E-mail: Y00927@ms1.ylh.gov.tw

right ACA was diagnosed. Good recovery was achieved with the use of anti-platelet agents. The follow-up CT angiography 1 year later revealed resolution of the dissecting aneurysm.

Reports of non-traumatic ACA dissection are relatively rare, but several clinical and neuroradiologic characteristic features have been identified. ACA dissection with or without dissecting aneurysm can be divided into 3 types based on the locations of the lesions (1): dissection extending from the internal carotid artery to the ACA (type 1), dissection at the A1 segment (type 2), or at the A2 to A4 segments (type 3). Type 3 is considered to be the most common, occurring preferentially in middle-aged men with hypertension, and tending to cause ischemic stroke with good prognosis. Our patient had a type 3 dissection with typical disease course compared to previously reported cases.

Strokes resulting from arterial dissections should be highly suspected in younger patients without prominent vascular risk factors. Common cerebral angiographic findings include double lumen sign (presence of a false lumen or an intimal flap), stenosis with dilation (pear and string sign), stenosis (string sign or tapered narrowing), and occlusion. T1-weighted MR images might reveal a hyperintense intramural hematoma surrounding a signal void during the second week. However, MR angiography cannot be viewed as a reliable substitute for conventional cerebral angiography in making a diagnosis because its positive rate of detection largely depends on the timing of the MR imaging (2). Since CT angiography (not MR angiography) findings correspond closely to cerebral angiographic findings (3), CT angiography is believed to be a more useful diagnostic tool for intracranial arterial dissection.

References:

1. Hirao J, Okamoto H, Watanabe T, et al. Dissecting aneurysms at the A1 segment of the anterior cerebral artery-two case reports. Neurol Med Chir (Tokyo) 2001;41: 271-8.
2. Ohkuma H, Suzuki S, Kikkawa T, et al. Neuroradiologic and clinical features of arterial dissection of the anterior cerebral artery. Am J Neuroradiol 2003;24:691-9.
3. Kodera T, Hirose S, Takeuchi H, et al. Radiological findings for arterial dissection of the anterior cerebral artery. J Clin Neurosci 2007;14:77-80.