Carotid Ultrasonographic Appearance of the Rupture of an Unstable Atheromatous Plaque in a Patient with Acute Ischemic Stroke

Key words: atheromatous plaque, artery-to-artery embolism, carotid artery, ultrasonography

Figure 1. Color duplex flow imaging of the right ICA. A: On admission. A low echo plaque (arrowhead) with giant ulceration (arrow) (longitudinal sections). B: Three weeks later. A hole in the plaque (ulceration) connecting to the flow lumen of the right ICA (yellow arrow) (longitudinal and transversal sections).
A 66-year-old man was admitted because of left hemiparesis and dysarthria. He smoked 20 cigarettes a day for 20 years and did not receive treatment for his hypertension. MRI revealed an infarcted lesion in the territory of the right middle cerebral artery and brain MR angiography was negative. Carotid ultrasonography revealed a giant ulceration with low echo plaque in the right internal carotid artery (ICA). It was suggested that artery-to-artery embolism was attributable to the low echo plaque. He was placed on an anti-platelet agent. Three weeks later, ultrasonography showed a small hole in the low echo plaque and that communicated with the lumen of the right ICA (Fig. 1). Angiography also presented a hole in the plaque of the right ICA (Fig. 2). As we diagnosed that plaque rupture had occurred, carotid endarterectomy was performed. Serial carotid ultrasonographic studies were useful to reveal the rupturing of unstable plaque responsible for the artery-to-artery embolism.

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