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REPORT



Fluctuating patency of atherosclerotic cervical internal carotid artery treated by carotid endarterectomy successfully: a case report

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ABSTRACT

Spontaneous recanalization of an atherosclerotic internal carotid artery (ICA) occlusion has been previously reported as a rare phenomenon, but spontaneous re-occlusion shortly after recanalization under antiplatelet therapy has not been documented yet. A 63-year-old man presented with impaired consciousness and left-sided hemiparesis. Magnetic resonance imaging showed new infarction in the right middle cerebral artery territory because of right cervical internal carotid artery occlusion, which became spontaneously patent on computed tomography angiography on the sixth day of admission. So carotid endarterectomy was planned. However, the ICA was recurrently occluded on the preoperative magnetic resonance angiogram three weeks later on admission, which condition was also confirmed during the subsequent surgery. In patients with severe ICA stenosis, patency may dynamically change even under antiplatelet therapy.

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KEYWORDS

Sinertal carotid artery stenosis; spontaneous occlusion; spontaneous recanalization; carotid endarterectomy; antiplatelet therapy

Introduction

Spontaneous occlusion of an atherosclerotic internal carotid artery (ICA) may become a cause of transient ischemic attack or stroke^{1,2} and spontaneous recanalization of the occluded ICA has been previously reported as a rare phenomenon.^{3–5} Indications for intervention in patients with such lesions are not well established. Here, we present a case of a symptomatic severe atherosclerotic stenosis of a cervical carotid artery, whose patency changed dynamically in a month, treated by carotid endarterectomy successfully.

Case report

A 63-year-old man with a history of hyperlipidemia presented with impaired consciousness and left-sided hemiparesis. Magnetic resonance imaging (MRI) showed hyper-intensity in the right middle cerebral artery (MCA) territory on diffusion-weighted-imaging (DWI) (Figure 1(a)), and magnetic resonance angiography (MRA) revealed an ipsilateral occlusion of the right ICA (Figure 1(b)). Immediate digital subtraction angiography showed a total occlusion of the right cervical ICA (Figure 1(c)). Oral antiplatelet therapy was started promptly. MRI then showed increase of hyper-intensity area (Figure 1(d)) on DWI and the previously occluded right ICA was recanalized on MRA (Figure 1(e)). Subsequent computed tomography angiography (CTA) confirmed recanalization of the right ICA with severe stenosis at its cervical origin (Figure 1(f)). Then, carotid endarterectomy in the subacute phase of stroke was planned. Although the patient had no new symptoms under dual platelet therapy for three weeks after the recanalization, his right ICA was absent on the preoperative MRA (Figure 2(a)). Sagittal reconstruction of MR plaque imaging showed obstruction of the right ICA at its origin

with iso-intensity plaque (Figure 2(b)). As the ICA was patent three weeks before, this fluctuating patency was interpreted as the blood flow in the ICA being too slow to be depicted on MRA, thus carotid endarterectomy was performed as planned. During the surgery, although the carotid plaque was removed as usual, there was no backflow from the distal ICA and there was clot inside the lumen. No backflow was obtained even after the removal of the clot, so a silicon tube (4L ventricle drainage tube, Fuji systems, Japan) was inserted into the lumen to approximately seven centimeters in depth. When the surgeon felt a 'give', which probably perforated a membrane, robust backflow from the distal ICA was obtained, and the operation was completed as usual. The postoperative MRI showed no new hyper-intensity area on DWI, and CTA confirmed the patency of the right ICA (Figure 2(c)).

Discussion

Previous studies have reported that the rate of spontaneous recanalization of atherosclerotic ICA occlusion is 2.3–10.3%.^{3,5} However, spontaneous re-occlusion shortly after recanalization under antiplatelet therapy has not been documented yet, and the optimal treatment for such lesions remains uncertain. In our case, dual antiplatelet therapy was initiated on the day of admission. Follow-up MRI detected new hyper-intense lesions in the right middle cerebral artery territory on DWI, and the subsequent CTA showed spontaneous recanalization of the cervical ICA with residual carotid plaque. Then on the MRA done before surgery, the ICA was occluded again, which was confirmed at surgery. When the ICA is nearly occluded, the patency may dynamically change despite dual antiplatelet therapy.

The clot in the lumen of the distal ICA was easily removed, but there was no backflow until a silicon tube was passed 7 cm

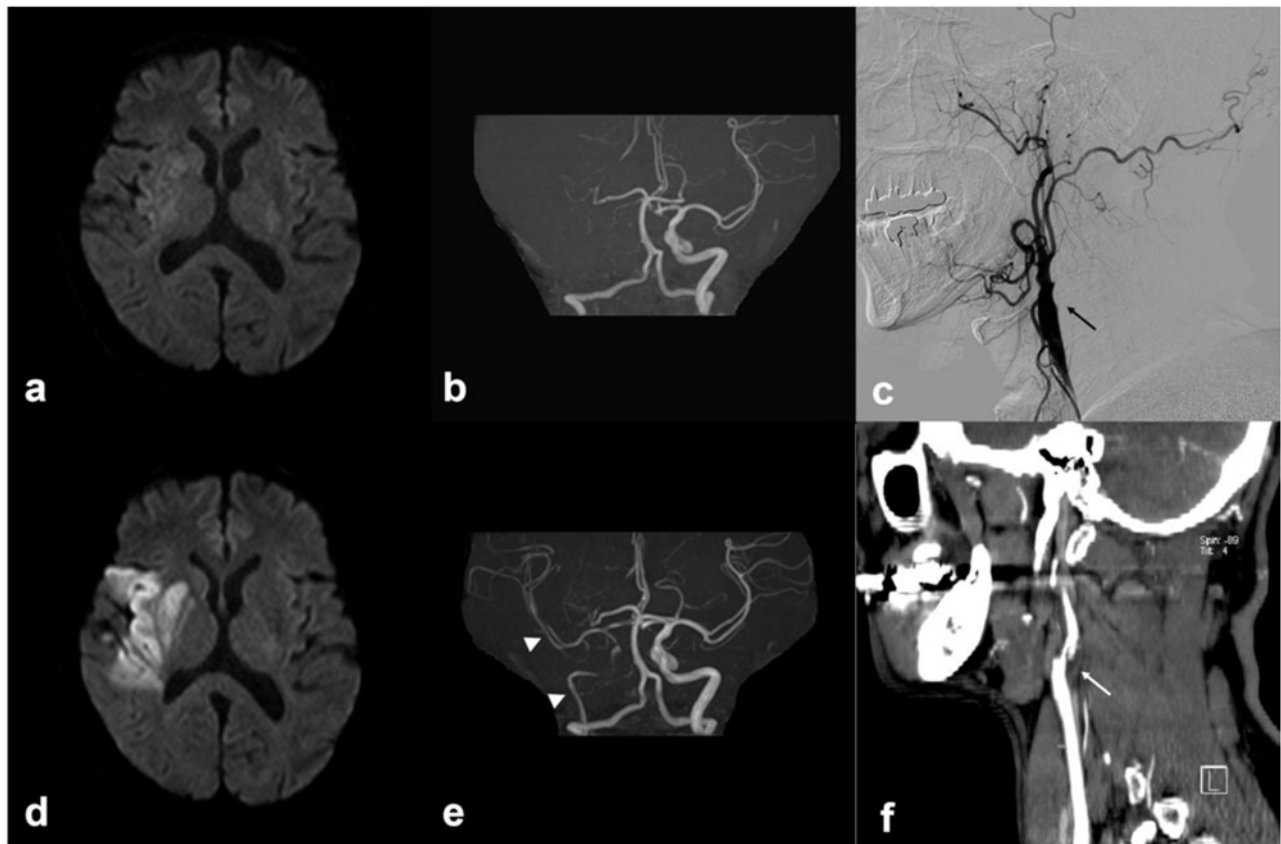


Figure 1. (a,b) Diffusion weighted imaging showed hyper-intensity in the right MCA territory, and the right MCA and ICA was not depicted on MRA. (c) Digital subtraction angiography showed a total occlusion of the right cervical ICA (black arrow). (d,e) Hyper-intensity area on follow-up DWI showed an increase from the previous study, and the right MCA and ICA was depicted on MRA (white arrowheads). (f) Sagittal reconstruction of CTA showed recanalization of the right ICA with severe stenosis at its origin (white arrow).

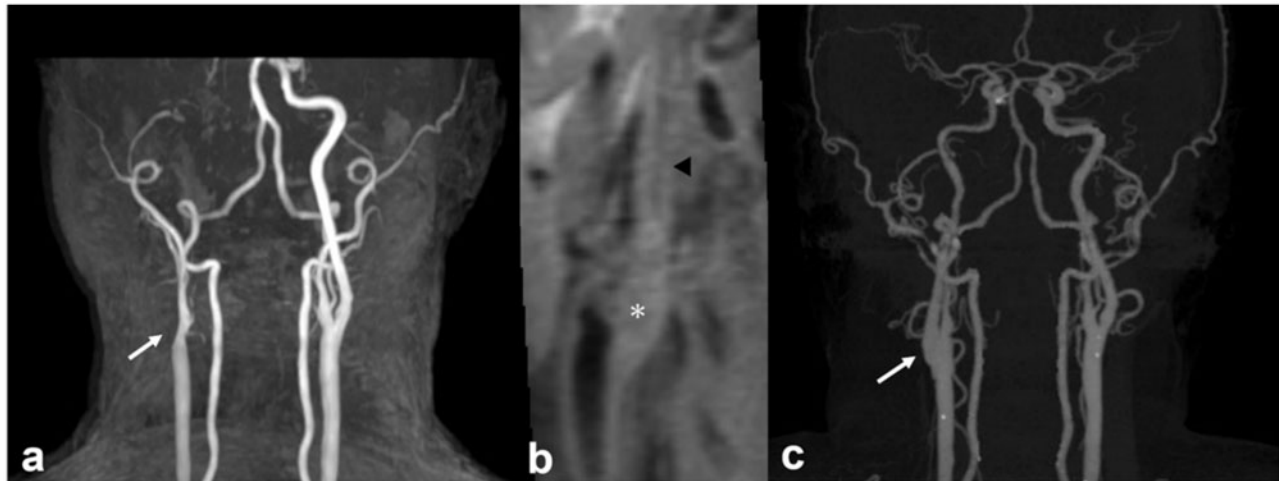


Figure 2. (a) The right ICA was not depicted on the preoperative MRA (white arrow). (b) Sagittal reconstruction of MR plaque imaging showed obstruction of the right ICA at its origin with iso density plaque (asterisk) and an absent flow void in the right distal ICA (black arrowhead). (c) The right ICA was well-depicted on the postoperative MRA (white arrow).

distal to the arteriotomy when robust backflow was obtained. Blind insertion of a tube may have a risk of dissection of the arterial wall but in our case, the lumen of the ICA was normal after the removal of the clot. The silicon tube was wide enough not to migrate into branching arteries and stiff enough perforate the occluding tissue, and the postoperative CTA showed successful recanalization of the right ICA.

Disclosure statement

No potential conflict of interest was reported by the authors.

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