An 81-year-old woman, with a past history of type 2 diabetes and hypertension, was brought to the emergency room with acute-onset decreased responsiveness accompanying right-sided weakness. Neurological examination indicated motor aphasia, right central facial palsy, and right hemiparesis. Computed tomography (CT) showed no evidence of intracranial hemorrhage, while laboratory data were unremarkable. Magnetic resonance imaging showed acute ischemic stroke in the left middle cerebral artery territory (Figure 1A). Carotid sonography showed non-obstructive atherosclerotic plaque in the bilateral internal carotid arteries near the bifurcation area. Luminal stenosis was estimated as 36% of the diameter for the plaque in the left internal carotid artery and 15% for the plaque in the right internal carotid artery.

**Figure 1.** Diffusion-weighted magnetic resonance imaging showing (A) hyperintensity in the territory of the left middle cerebral artery. (B, C) Carotid sonography showing calcified atherosclerotic plaque (arrows) in the bilateral internal carotid arteries near the bifurcation area. Luminal stenosis was estimated as (B) 36% of the diameter for the plaque in the left internal carotid artery and (C) 15% for the plaque in the right internal carotid artery.
Rupture of an atherosclerotic plaque is the major cause of acute myocardial infarction and ischemic stroke. Most of the high-risk (also called vulnerable) plaques are non-obstructive and are not identified on routine stress testing or other non-invasive imaging, thus, ruptured plaque is difficult to predict. According to the literature, 18 F-NaF PET-CT was found to be the first non-invasive imaging method to identify ruptured or vulnerable coronary plaque. This is a major clinical advance for the prevention and treatment of acute coronary syndrome. Although some studies have shown the usefulness of 18F-fluorodeoxyglucose as a surrogate for vascular inflammation and macrophage burden, 18F-NaF activity seems to distinguish culprit plaque and non-culprit plaques better. 18F-NaF PET-CT is a clinical, routine imaging modality used for the evaluation of primary and metastatic bone tumors, because it detects area of active calcification and region of remodeling in the skeleton. In addition, 18F-NaF PET-CT can detect vascular microcalciﬁcation, a major feature of vulnerable atherosclerotic plaques unable to be detected on standard CT. The accuracy of localization on 18F-NaF PET-CT may be better than multi-slice CT.
to predict unstable plaque in acute coronary syndrome. Here, we report the first case of ruptured carotid plaque successfully identified on 18F-NaF PET-CT in an acute ischemic stroke patient. Further studies are warranted to establish its clinical value in the prevention of ischemic stroke.

Disclosures

None.

References