

Peripheral Embolism from an Aortic-Arch Atheroma

TO THE EDITOR: In Images in Clinical Medicine (Dec. 11 issue),¹ Lee and Chandraratna provide evidence of dry gangrene in the right foot of a 62-year-old man and evidence of a mobile arch atheroma. They suggest that thromboembolism from atheroma is an important cause of stroke and peripheral embolism. We agree. However, we would suggest that this is not a case of “thromboembolism,” as it is characterized in the second paragraph. The presence of both the dorsalis pedis and posterior tibial pulses in the affected foot suggests that there has not been a fibroplatelet embolic event. Indeed, this constellation is more suggestive of cholesterol crystal embolization — how else to explain the

preserved pulses? Also, single-vessel infrapopliteal occlusion typically does not cause intermittent claudication, much less gangrene. We suggest that the transesophageal echocardiogram reveals a ruptured plaque and substrate for cholesterol emboli, not thromboembolism.

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1. Lee JS, Chandraratna PAN. Peripheral embolism from an aortic-arch atheroma. *N Engl J Med* 2003;349:e23 (Web only). (Available at www.nejm.org/cgi/content/full/349/24/e23.)

Noninvasive Detection of Plaque Instability with Use of Radiolabeled Annexin A5 in Patients with Carotid-Artery Atherosclerosis

TO THE EDITOR: Although progressive stenosis of the arterial lumen constitutes the basis for ischemic symptoms in atherosclerotic vascular disease, acute vascular events are for the most part associated with instability of the plaque and formation of an occlusive thrombus.¹ Apoptosis of smooth-muscle cells and of macrophages in the plaque has been causally linked to plaque rupture.² Therefore, we reasoned that noninvasive detection of apoptosis could be used to identify instability of atherosclerotic plaques. We have recently demonstrated

the feasibility of the noninvasive detection of apoptosis, using technetium-99m-labeled annexin A5 (previously referred to as annexin V), in experimental atherosclerotic lesions.³ Annexin A5 is a plasma protein with a strong affinity for phosphatidylserine expressed by apoptotic cells.^{4,5}

In a pilot clinical study, we evaluated four patients with a recent or remote history of transient

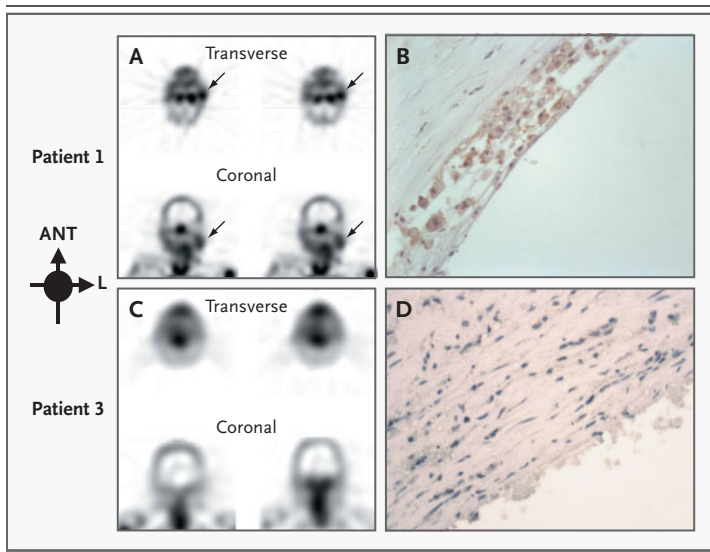


Figure 1. Images of Unstable Atherosclerotic Carotid-Artery Lesions Obtained with Radiolabeled Annexin A5.

Panel A shows transverse and coronal views obtained by single-photon-emission computed tomography (SPECT) in Patient 1, who had a left-sided transient ischemic attack (TIA) three days before imaging. Although this patient had clinically significant stenosis of both carotid arteries, uptake of radiolabeled annexin A5 is evident only in the culprit lesion (arrows). Histopathological analysis of an endarterectomy specimen from Patient 1 (Panel B; polyclonal rabbit anti-annexin A5 antibody, $\times 400$) shows substantial infiltration of macrophages into the neointima, with extensive binding of annexin A5 (brown). In contrast, SPECT images of Patient 3 (Panel C), who had had a right-sided TIA three months before imaging, do not show evidence of annexin A5 uptake in the carotid-artery region on either side. Doppler ultrasonography revealed a clinically significant obstructive lesion on the affected side. Histopathological analysis of an endarterectomy specimen from Patient 3 (Panel D; polyclonal rabbit anti-annexin A5 antibody, $\times 400$) shows a lesion rich in smooth-muscle cells, with negligible binding of annexin A5. ANT denotes anterior, and L left.