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Case Report

A case of floating thrombus in the ascending aorta that caused recurrent peripheral arterial embolic events

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ABSTRACT

We report the case of a 62-year-old man with recurrent arterial embolisms to his arms caused by a thrombosis of the ascending aorta. He had developed a left brachial artery embolism 8 years previously, but presented with a right brachial artery embolus on this occasion. A clot-like mass was seen in the ascending aorta on computed tomography without significant atherosclerosis. Magnetic resonance imaging identified multiple asymptomatic cerebral infarctions. Therefore, we surgically removed the thrombus in the ascending aorta, which was an organized fibrin clot. Pathologically, atherosclerosis and plaque formation were evident at the intima where the clot attached. Clot formation was considered to be due to local arteriosclerosis.

We report a case of thrombosis of the ascending aorta causing multiple and recurrent arterial embolisms. The patient had no evidence of coagulation disorders, and arteriosclerotic risk factors such as hypertension, diabetes mellitus, and dyslipidemia were absent. Thus, thrombosis may develop in patients without traditional risk factors.

<**Learning objective:** We report a case of thrombosis of the ascending aorta causing multiple and recurrent arterial embolisms. The patient had no evidence of coagulation disorders, and arteriosclerotic risk factors such as hypertension, diabetes mellitus, and dyslipidemia were absent. Thus, thrombosis may develop in patients without traditional risk factors.>

Introduction

Aortic thrombi can be caused by blood disorders (e.g. protein S or protein C deficiency and anti-phospholipid antibody syndrome), tumors, aortitis, collagen disease, aortic structural abnormalities (e.g. aortic aneurysms), intra-aortic atheroma, hormone therapy, steroid use, and atrial fibrillation. Indeed, aortic thrombi are rare in patients without these causes, and thrombosis of the ascending aorta is rarer still. Here, we describe a patient with thrombosis of the ascending aorta that caused multiple cerebral infarctions and recurrent arterial embolisms of the arms.

Case report

A 62-year-old man presented with sudden-onset numbness and a cold sensation in his right arm in January 2014. He had no history of hypertension, diabetes mellitus, or dyslipidemia, but had previously smoked.

Eight years previously, he had left brachial artery embolism. Contrast-enhanced computed tomography (CT; Fig. 1a) had identified a clot-like mass attached to the aortic arch with asymptomatic cerebral infarction in the distribution of the left vertebral artery. Surgical embolectomy was performed, and postoperative anticoagulant therapy was provided. However, he developed diverticular bleeding that caused hemorrhagic shock, which necessitated surgical colectomy and the termination of anticoagulant therapy. He was subsequently able to tolerate antiplatelet therapy. Approximately 6 months later, the clot-like mass in the aortic arch had disappeared, even though he had stopped the antiplatelet therapy by himself.

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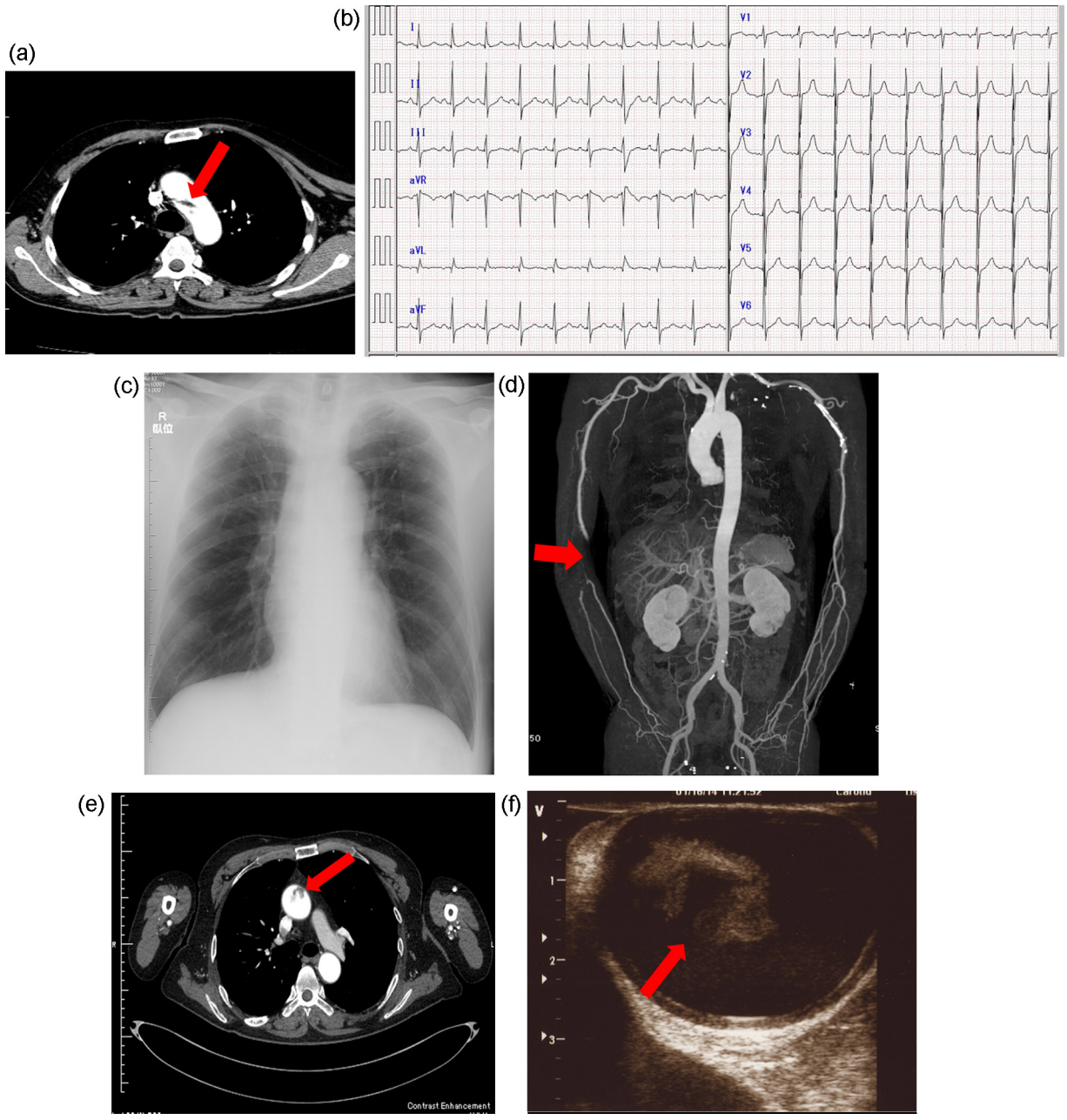

Fig. 1. (a) Contrast-enhanced computed tomography (CT) from 8 years before his current admission shows a mass in the arch aorta (arrow). (b) Twelve-lead electrocardiography on admission shows sinus rhythm. (c) Chest X-ray on admission revealed no abnormal findings. (d) Contrast-enhanced CT showed arterial obstruction from the right brachial artery to the proximal ulnar artery (arrow). (e) CT showing a clot-like mass in the ascending aorta (arrow). (f) Intraoperative echocardiography showing the mass in the ascending aorta (arrow).

On this occasion, he was fully conscious with a blood pressure of 155/88 mmHg, and a heart rate of 103 beats per minute. His right brachial arterial pulse was palpable, but his right radial artery pulse was weak. In addition, his serum creatine kinase and D-dimer levels were elevated. Protein S and protein C levels were normal, anti-phospholipid antibody was negative (Table 1), and he had not taken steroid therapy. Electrocardiography (Fig. 1b), chest X-ray (Fig. 1c), or echocardiography revealed no abnormal findings.

Ultrasonography suggested that thrombus was likely in his right brachial and ulnar arteries, and contrast-enhanced CT identified arterial obstruction from the site of the upper elbow joint of the right brachial to the proximal ulnar artery (Fig. 1d). We also found a mass measuring approximately 10 mm in the ascending aorta located superior to the previous mass (Fig. 1e) and partial filling defects in both kidneys. CT findings were not consistent with aortic dissection, and there was no strong evidence of aortic sclerosis. There was no evidence of any lower limb arterial obstruction. We diagnosed an acute right brachial artery embolism and performed emergency embolectomy. Postoperatively, blood flow was improved to the right arm.

An echocardiogram revealed a floating mass in the ascending aorta, magnetic resonance imaging identified multiple asymptomatic cerebral infarctions that were thought to be recent, and there were no intra-cardiac thrombi. Thus, the origin of the embolism was thought to be the floating mass in the ascending aorta, and surgical enucleation was performed on day 2 of admission.