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Idiopathic floating thrombus of the common carotid artery: Diagnosis and treatment options

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KEYWORDS
Floating carotid thrombus;
Color Doppler sonography;
Surgical treatment.

Abstract The authors report a case of ischemic stroke caused by a floating thrombus in the common carotid artery and review the diagnostic techniques used to identify the cause of ischemic strokes. They also examine the possible origins of idiopathic carotid thrombi and the current options for their management, with emphasis on the difficulties and risks associated with medical and surgical approaches.

Sommario Gli autori, prendendo spunto da un caso clinico di ictus ischemico da trombo flottante della carotide comune, analizzano le tecniche diagnostiche da utilizzare per una diagnosi etiopatogenetica in caso di ictus ischemico. Prendono inoltre in esame le possibili origini di un trombo idiopatico della carotide e le attuali possibilità terapeutiche, distinguendo le difficoltà e i rischi sia del trattamento medico che di quello chirurgico.

Introduction

The presence of a free-floating thrombus in the carotid artery is a rare finding, but a number of cases have been reported with analyses of the etiopathogenesis of this condition and possible approaches to its treatment [1]. Most cases can be attributed to atherosclerotic plaques or intracardiac thrombi in the heart. Cases in which these causes have been ruled out are extremely rare and are generally described as idiopathic [2]. Nonetheless, the possibility of free-floating thrombi should always be considered in the differential diagnosis of ischemic stroke in a patient with no evidence of atherosclerosis or cardiac disease. They can be readily detected with color Doppler studies and confirmed, if necessary, with a contrast-enhanced examination (computed tomography [CT] or magnetic resonance imaging [MRI]) [3]. There are basically two treatment options: surgical removal of the thrombus or medical therapy based on anticoagulation. In this report we describe our experience with a patient who had a floating carotid thrombus and review the diagnostic and therapeutic options available for the management of cases of this type.

Case report

The patient was a 76-year-old woman with a family history of stroke and hypertension. She herself was being treated

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for hypertension with olmesartan. She also suffered from bronchial asthma. Her surgical history included an appendectomy, left knee replacement, and repair of a prolapsed uterus.

After taking levofloxacin and lansoprazol, she had reportedly developed generalized erythema followed by vomiting and chest pain. She was taken to a local emergency room, where she developed progressive left-sided weakness followed by a generalized convulsive episode. After the seizure the patient was confused, and brief episodes of clonic contractions were noted in the left arm. She was treated with luminal, aspirin, and steroids. CT of the brain was negative for ischemic events.

The physical examination revealed an alert cooperative elderly woman with disorientation to time, left hemiasomatognosia (deviation of the head and eyes to the right, left hemiplegia and hemianesthesia), and no impairment of deglutition or micturition. Doppler sonography of the supraaortic trunks revealed moderate eccentric atheromasia in the middle third of the right common carotid artery, which was not associated with stenosis, and a finger-shaped extension that had no contact with the vessel wall and that moved back and forth in rhythm with the sphygmic wave. The patient was immediately transferred to the Critical Care department of the regional hospital. Here a second color Doppler study confirmed the presence of a mobile thrombotic formation arising in the proximal portion of the right common carotid artery (Fig. 1, Fig. 2) with a circumscribed area of adherence to the vessel wall. The thrombus extended for 20 mm, and its tip lay approximately 18 mm from the bifurcation. On CT angiography, the thrombus appeared as an elongated, rod-shaped, nonenhanced, endoluminal formation. The lower end was attached to the intimal surface of the artery, and the remainder of the thrombus was mobile. The length of the thrombus (craniocaudal axis) was 2.2 cm, and the cranial tip was located about 2 cm from the bifurcation (Fig. 3). The study also revealed an area of parenchymal hypodensity at the cortical-subcortical level in the right temporoparietal region. Surgery was performed immediately. Longitudinal arteriotomy of the right common carotid revealed a floating thrombus attached to the posterior wall of the vessel (Fig. 4). The clot was removed, and the underlying vessel wall appeared intact and plaque-free. Histologic examination of the thrombus revealed hematic and fibrinoleukocytic elements. Cultures yielded no microbial growth. After surgery, the neurologic findings were unchanged. An episode of pneumonia was successfully managed with antibiotic therapy. The transesophageal echocardiogram was within normal limits, and screening for thrombophilia was negative. Color Doppler sonography performed after surgery revealed normal patency in the right common carotid with no evidence of residual thrombosis.

Fig. 1 Doppler sonography reveals a floating thrombus in the common carotid artery (longitudinal scan).

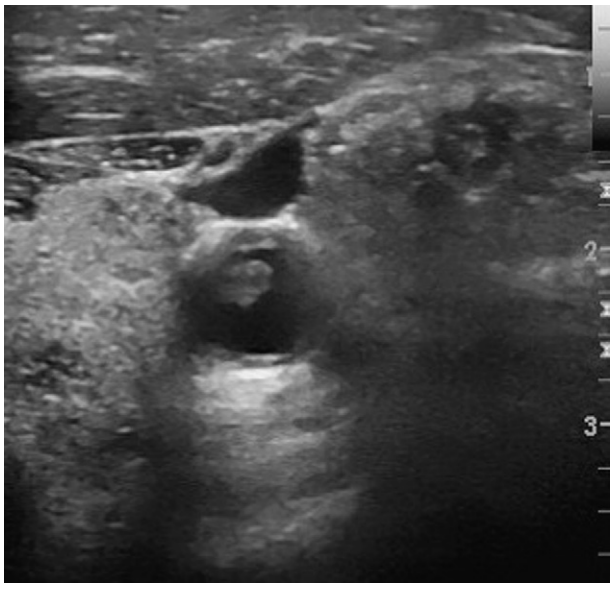

Fig. 2 Doppler sonography reveals a floating thrombus in the common carotid artery (transverse scan).

Discussion

The presence of a floating thrombus in the carotid axis is a rare finding that is widely described in the literature. Its presentation is often dramatically associated with an ischemic stroke caused by distal embolism [2]. An interesting review by Bhatti et al. [5] found that a total of 145 cases have been reported since 2004. Men are affected more frequently than women, and the condition is more common in younger patients than in those with atherosclerosis. This review also included floating thrombi arising from atherosclerotic plaques, which in our opinion should be excluded from discussions of idiopathic carotid thrombosis.

In the vast majority of cases (92%) [4], the diagnosis is made after the patient develops clinical signs of cerebral ischemia. The main risk attached to these lesions is the possibility of cerebral embolism caused by detachment of clot fragments.