Fusiform aneurysms detected 5 years after removal of an atrial myxoma

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Abstract Neurological signs frequently accompany atrial myxomas. Association of multiple cerebral aneurysms in patients with atrial myxomas are less common than embolic infarctions. The development of aneurysms years after the cardiac tumor removal is rare, and few MR images have been reported to date. A case of multiple peripheral fusiform aneurysms detected 5 years after tumor resection is presented in this report, together with MR images and CT and angiographic images.

Keywords Atrial myxoma · Aneurysms · Magnetic resonance imaging

Introduction

Myxomas are the most common primary tumors of the heart. Atrial myxomas are true neoplasms thought to be derived from pluri-potent subendocardial mesenchymal cells [1]. Neurological disorders mostly precede the discovery of the primary tumor or are present at the time of diagnosis. Rarely do embolic stroke, metastatic mass or multiple aneurysms occur long after removal of the cardiac tumor [2]. A case of multiple, fusiform aneurysms detected 5 years after resection of the cardiac tumor is illustrated in this paper. The reports showing MR images of multiple aneurysms in myxoma patients are few in number [3, 4]. We present a case with CT, MR and angiographic images.

Case report

A 40-year-old man was admitted to hospital for evaluation of tachycardia. He stated that he had had tachycardia for approximately 15 years but that it had become more disturbing for the past year. On examination blood pressure was 115/80 mmHg, pulse rate was 115 beats/min with a regular rhythm and systolic murmur. Echocardiography revealed a pedunculated mass prolapsing through the mitral valve into the left ventricle, suggesting atrial myxoma. Angiography showed a filling defect in the left atrium. At the operation a mass measuring 5 × 4 × 4 cm was resected. Pathological examination proved that it was a typical myxoma. The patient was free of symptoms during the following 5 years. He then complained of numbness in his right arm, and blurred vision.

Contrast-enhanced CT examination showed comma-shaped enhancing lesions deep in the sylvian fissures bilaterally and in left parietal sulcus (Fig.1). MR imaging showed all the lesions seen on CT and an additional lesion in the left calcaneus sulcus. Postcontrast T1-weighted axial images showed fusiform intrasulcal lesions enhanced with Gd-DTPA homogeneously or in a ring-like fashion (Fig.2a, b). T2-weighted images disclosed their signal void characteristics (Fig.2c). Four-vessel system angiography revealed fusiform dilatations in the prefrontal branch of the right middle cerebral artery (MCA), the angular and frontal branches of the left MCA, and the calcaneal branch of the left vertebral artery, varying from 1 mm to several millimeters in diameter (Fig.3). Angiography showed no aneurysm that was not detected by MRI. Endovascular or surgical intervention was not performed for the aneurysms. Control MRI at 12 months did not reveal a new lesion.

Discussion

Atrial myxomas being the most common primary tumors affecting the heart are more common in women with no familial preponderance [1]. Initially it was proposed that they developed in an organized thrombus in
the heart [5], but soon after the reports about their recurrences and metastases they were accepted as true neoplasms. The surgical outcome of myxomas is usually good [6, 7].

The patient with cardiac myxoma may present with cardiac or systemic findings such as fever, weight loss and malaise. However, not uncommonly, neurological symptoms due to embolization lead to the discovery of the primary tumor [8, 9]. Emboli composed of tumor, blood clot or both, lodge in cerebral vessels and cause cerebral infarct. Embolic stroke itself is the most common presentation of the cardiac myxoma. Apart from infarction, cerebral aneurysms are another complication of the myxomas, frequently detected before or at the time of diagnosis. Stoane et al. presented the filling defects and focal dilatations in arteries in cerebral angiograms of two patients with atrial myxoma, and showed an increase in the size of the aneurysms arteriographically 2 months after the removal of the cardiac tumor in one patient [9]. Burton and Johnston showed invasion and proliferation of the myxomatous tissue replacing the vessel wall of a dilated artery [10]. According to Price et al., aneurysms are the result of tumor-material which lodges and grows in situ, invading the intima and media of the vessel wall [11]. Neurological disorders after removal of cardiac tumor are rare. New et al. demonstrated neoplastic properties of the myxomas leading to vessel irregularities and aneurysm formation in a patient 3 years after removal of the cardiac tumor [12]. Chen et al. reported a case of metastatic atrial myxoma with aneurysmal rupture 1 year after tumor excision [13]. Tumor emboli surviving locally may disrupt the internal elastic lamina and grow into the wall of the ves-