LV geometric changes. CMR may be an important diagnostic technique to guide the decision-making process. Our initial experience has been encouraging, but future studies with a greater number of patients and long-term follow-up are warranted.

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Recurrence of myxoma in the left ventricle with concurrent cerebral fusiform aneurysms after previous atrial myxoma surgery

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Cardiac myxoma belongs to the possible findings in a workup after cerebral stroke, despite being an uncommon disease with an incidence of 0.5 per million population per year.¹ After surgical removal, cardiac myxoma has a recurrence rate of 2% to 3%, higher in patients with familial myxomas (30%–75%).^{2,3} Most new tumors develop in the atria. A local recurrence suggests incomplete resection at the primary operation. Whether recurrent myxoma is a result of dissemination of tumor cells at the first surgical procedure or a multifocal disease remains unclear.⁴ Since the introduction of echocardiography and cardiac magnetic resonance (CMR) imaging, the follow-up of these patients has improved.

Clinical Summary

In June of 2005, a 55-year-old female patient, previously healthy without medication or allergies, presented with a left-sided hemiparesis at the emergency department of a local hospital. Cerebral computed tomography scan displayed a 1-cm frontotemporal lesion without bleeding. Her symptoms abated in 24 hours. Electrocardiography showed normal sinus rhythm, and the chest x-ray was normal. Transthoracic echocardiography (TTE) revealed a myxoma in the left atrium. The tumor was removed with a biatrial approach under cardioplegic arrest. The postoperative course was uneventful. Histology showed a benign myxoma with an undetermined surgical margin toward the insertion point.

In December of 2005, the patient had a new stroke. Recurrent myxoma was suspected. However, several echocardiograms (transthoracic and transesophageal) and a CMR study in April of 2006 showed normal results (Figure 1, A). Carotid ultrasound showed no plaques. Immunologic studies revealed normal immunoglobulins and positive test results for antinuclear antibodies and rheumatoid factor. Anti-citrullin antibodies, extractable nuclear antigen, and antineutrophil antibodies were negative. Lyme disease was ruled out. Lupus anticoagulant was found, with negative anticardiolipin antibodies but no sign of cutaneous vasculitis. The workup implicated cerebral vasculitis; thus, a high-dose steroid regimen was begun and acetylsalicylic acid was administered. A cerebral 4-vessel angiography was performed that showed small aneurysms (Figure 2). The tentative diagnosis was fusiform cerebral aneurysms after myxoma surgery, and during an outpatient consultation the patient was recommended to undergo an annual TTE and a cerebral biopsy to confirm the diagnosis. On the following day, the patient returned to her local hospital with a new stroke. TTE detected a tumor in the apical part of the left ventricle (LV). On CMR, the tumor measured 23 × 27 mm with its base at the midportion of the lateral wall (Figure 1, B). Reevaluation of all imaging studies did not reveal any previous signs of ventricular myxoma. The patient was taken to surgery. Heparin-coated tubing was used in the bypass circuit to reduce the heparin dose and prevent bleeding

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Figure 1. A, CMR examination in April 2006 without recurrence in the LV. B, CMR, December 2006, displays the tumor recurrence apically in the LV. No signs of pericardial effusion or extracardiac tumor. C, resected specimen including trabeculae and papillary muscles of the LV.

Figure 2. Cerebral angiogram showing varying caliber of the cerebral vessels and fusiform aneurysms (white arrow).

complications. The left atrium was opened without signs of recurrence. An aortotomy displayed the myxoma but did not allow a safe resection. An alternative approach was selected by an anteroapical incision into the LV. The tumor was adherent to a large part of the LV trabecula, and part of the myocardium and the papillary muscles had to be resected with the tumor (Figure 1, C). The mitral valve was excised through the left atrial incision, and a biological prosthesis was implanted. The postoperative course was uneventful, and histology confirmed the diagnosis of myxoma, with

no signs of malignant transformation. On follow-up 2 and 6 months after surgery, the patient is doing well. CMR shows no signs of recurrence.

Discussion

The recurrence of myxoma after primary surgery is rare.¹ Recurrences may occur during a time span from 6 months to 11 years after the surgical removal.³ The association between cerebral aneurysms and previous cardiac myxoma is rare, and since the first report in 1894 only 40 cases have been reported in the literature. The majority of these cerebral aneurysms are associated with left atrial myxomas (91%). The favored hypothesis is that cardiac embolic material damage the vasa vasorum of the cerebral vessels leading to the formation of aneurysm.⁵ Clinically, there was a strong suspicion of recurrence of the myxoma, but neither echocardiography nor CMR could verify this. The rapid growth is remarkable, with no signs on a TTE 3 months before the tumor was found in the LV. Only 3 reports have been published⁴ of recurrent LV myxoma after the primary tumor was found in the left atrium. Recurrent stroke in a patient with previous myxoma surgery should prompt intensive efforts to detect a recurrent tumor in the entire heart. The appearance of cerebral fusiform aneurysm postoperatively can be associated with the primary tumor but does not preclude the possibility of late recurrence.

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