INTRODUCTION

Primary cardiac tumors (PCTs) are rare. Around 25% of these tumors are malignant and 90%-95% of malignant tumors are sarcomas. They may remain clinically silent for a long time or cause a range of cardiac and systemic symptoms that mimic other diseases.

The preferred initial method for detecting cardiac tumors is echocardiography, but a complete assessment of the heart and surrounding tissue may sometimes be difficult with this technique. Magnetic resonance (MR) imaging and computed tomography (CT) can provide precise information on the extent of involvement of the tumor. Moreover, these techniques allow simultaneous evaluation of cardiac structures and surrounding tissue and, in certain instances, a guided biopsy is possible.

We report the use of different imaging techniques to determine the clinical and morphologic characteristics of the hearts of 3 patients who underwent interventions for cardiac angiosarcomas.

CASE STUDY

Between 1995 and 2002, 3200 patients underwent open-heart surgery. Three of these (0.0009%) were pa-
tients who had cardiac masses diagnosed by imaging techniques. Diagnosis of cardiac angiosarcoma was confirmed by biopsy in all 3 patients. These patients are discussed below.

Case 1

The patient was a 19-year-old man with functional grade 3 dyspnea, skin and mucous membrane pallor, and a grade 3/6 systolic murmur audible in the fourth and fifth right intercostal spaces. The echocardiogram showed a solid mass of variable density measuring 6×4.5 cm in the right atrium (RA) that had invaded the atrial septum (Figure 1A). In the enhanced T1-weighted MR images (Figure 1B), a proliferative mass that had invaded almost the entire right ventricle (RV) was evidenced, displacing the atrial septum to the left. Moderate left pleural effusion and retrocardiac atelectasis were also found. No signs of metastasis to abdominal organs were observed with abdominal MR imaging or echography. Surgical intervention confirmed a large RA tumor that had invaded the RV through the tricuspid valve. The base of attachment extended towards the RA free wall and towards the opening of the inferior vena cava. No hepatic metastasis was observed in abdominal CT or echography. The tumor was resected and the atrium reconstructed with a bovine pericardial patch. Biopsy confirmed the diagnosis of angiosarcoma. After 1 year of follow up, the patient presented with progressive dyspnea and refractory congestive heart failure and died.

Case 2

A 32-year-old woman with dyspnea at rest and of emaciated appearance was experiencing tachycardia on admission to hospital. A grade 3/6 diastolic murmur—maximal in the tricuspid region—was audible and she presented jugular engorgement and leg edema. The echocardiogram revealed a solid mass measuring 8×11 cm in the lower, lateral and apical walls of the LV (Figure 3A). The enhanced T1-weighted MR images (Figure 3B) showed a large tumor of 14×11 cm, with variable T2-weighted signal strength. Lytic lesion of the costal arch and mild pleural effusion were also observed. Chest CT (Figure 3C and D) defined the edges of the tumor and allowed a guided biopsy without complications. The biopsy confirmed diagnosis of primary angiosarcoma. After 6 months, the patient presented with refractory heart failure and died.

DISCUSSION

Malignant PCTs may present with any cardiac symptom,1,3,4,10 but heart failure and systemic embolism are the most common ones initially.5,11 Two of our
and signs of tumor necrosis. Although there are no significant masses, compression of the cardiac chambers or the attachment of the tumor to the myocardial wall, the tumorancy in the MR images are the size of the base of atrophic regions. The left heart outline is deformed by a multilobed mass with regions of variable intensity. D: computed tomography with biopsy needle (B). LA indicates left atrium; RV, right ventricle.

CONCLUSIONS

We present 3 patients with angiosarcoma in whom echocardiography provided preliminary diagnosis. Magnetic resonance best established the extent of the tumor and CT allowed diagnosis by means of biopsy in one patient. Surgery confirmed the definitive diagnosis and the short-term outcome was death in all 3 patients.

REFERENCES

2. Roberts WC. Primary and secondary neoplasms of the heart. Am J Cardiol 1997;80:671-82.