CASE STUDY

Intramural Cardiac Myxoma in Left Ventricular Wall: an Unusual Location

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ABSTRACT

A 27-year-old asymptomatic woman was investigated for an abnormal finding in the cardiac contour on routine chest radiography. Echocardiography revealed a heterogeneous mass in the anterolateral left ventricular wall. Excision of the tumor disclosed an absence of communication between the residual cavity and the left ventricular endocardium. Histological features of the tumor indicated an intramural myxoma.

(Asian Cardiovasc Thorac Ann 2002;10:170–2)

INTRODUCTION

Cardiac tumors are quite rare and the majority are myxomas.[1] Most cardiac myxomas are found in the left (75%) or right atria (20%) and in rare cases, they are found in the ventricles, but always intracavitary.[2] This report describes an intramural cardiac myxoma in the left ventricular (LV) wall, a location not previously reported.

CASE REPORT

A 27-year-old white female was referred to our unit because of an abnormal finding in the cardiac contour on routine chest radiography. She reported no symptoms and lead an active life. Clinical examination was normal. Electrocardiography showed sinus rhythm, negative T waves in leads V_1 to V_5, and signs of LV hypertrophy. Chest radiography revealed cardiomegaly, rectification of the left border of the heart, and normal lung fields (Figure l). Echocardiography disclosed a heterogeneous mass in the anterolateral LV wall, and no other findings (Figure 2). Magnetic resonance imaging indicated a tumor measuring approximately 5.6×3.6-cm in the LV wall, which was not obstructing the LV outflow tract (Figure 3). Coronary angiography (Figure 4) was normal except for distortion of the left anterior descending artery and abnormal vascularity in the area between this artery and the first diagonal branch. The patient underwent surgery via a median sternotomy. After pericardiotomy, a prominent soft mass was detected bulging over the LV wall in the area between the left anterior descending artery and the first diagonal branch. Puncturing this area led to drainage of a clear yellow viscous liquid. Cardiopulmonary bypass was established under moderate systemic hypothermia and cold blood cardioplegia. A vertical left ventriculotomy revealed a large tumor ($6 \times 4 \times 3.5$ cm) that was not encapsulated, yellow-white in color, and of gelatinous appearance, consisting of multiple friable polypoid fronds. Excision of the tumor disclosed an absence of communication between the residual cavity and the LV endocardium. The defect was closed in a linear fashion and reinforced with felt strips in the usual manner. The postoperative course was uneventful and the patient was discharged in good condition.

Histologic analysis of the tumor revealed a myxoid matrix without fibers, within which were embedded stellate, fusiform, and polygonal cells with scant eosinophilic

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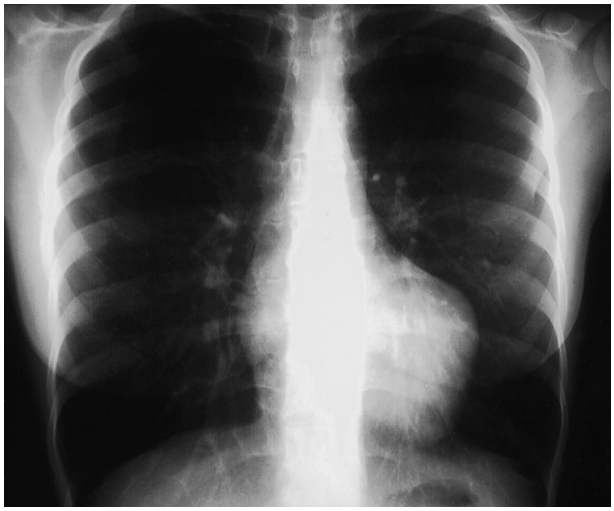


Figure 1. Posteroanterior chest radiograph demonstrating rectification of the left border and cardiac enlargement.

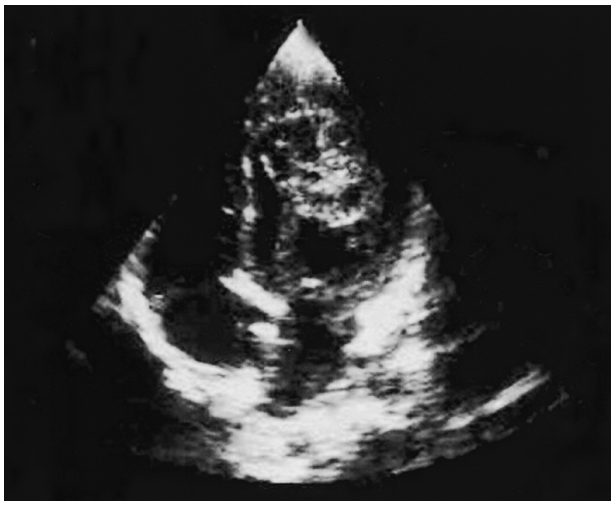
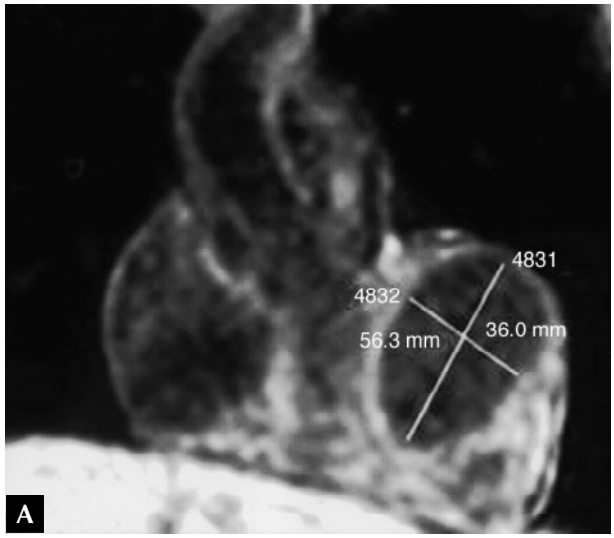


Figure 2. Long-axis transthoracic echocardiogram showing a heterogeneous echogenic left ventricular mass.

cytoplasm and no mitotic activity. These cells were arranged singly and in small nests. Other cells with a vascular appearance were also seen. The endocardial layer under the tumor had a normal appearance. Based on these histological features, the tumor was considered to be an intramyocardial myxoma.

DISCUSSION

Cardiac myxoma is a benign neoplasm of endocardial origin. It affects patients aged 11 to 82 years (mean age, 50 years) and it has a female predominance. The tumor usually projects from the endocardium into the cardiac chamber. The cells giving rise to these tumors are considered to be multipotential mesenchymal cells that persist as embryonal residues during septation of the heart; thus the prevalence of myxomas in the atrial septum is understandable.[3] Two distinct types of cardiac myxomas have been described: sporadic myxomas occur mostly in the left atrium (86%) and have a typical presentation;



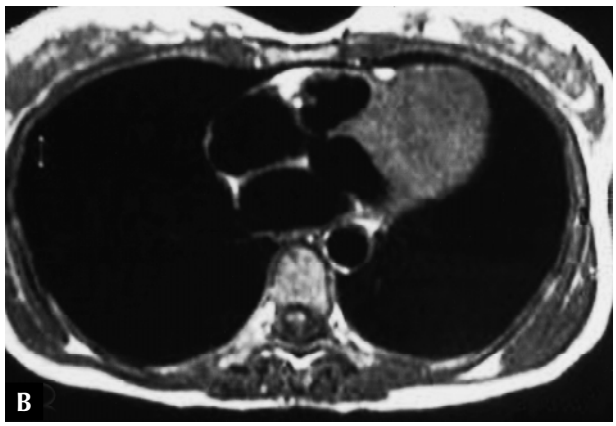


Figure 3. (**A**) Coronal magnetic resonance image revealing a tumor with a heterogeneous appearance: peripheral high signal and central low signal intensity (this finding represents the myxomatous component). (**B**) Axial magnetic resonance image showing a tumor occupying the left ventricular wall.

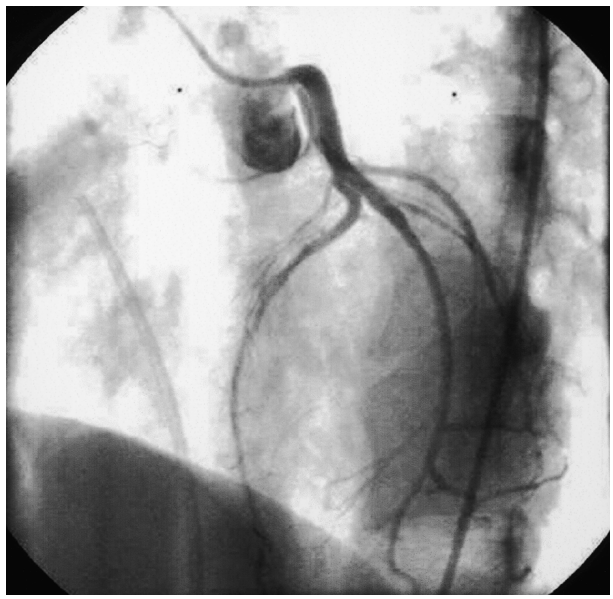


Figure 4. Cineangiogram (left anterior oblique view) disclosing distortion of the left anterior descending artery and abnormal vascularity in the area between left anterior descending artery and the first diagonal branch.

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familial myxomas constitute 7% of cardiac myxomas and exhibit atypical biological behavior including multicentricity (45%), atypical location (in cardiac chambers other than the left atrium, 38%), recurrence after surgical excision (12% to 22%), and unusual associated conditions (20%) such as the Carney complex.[4] Patients with a familial predisposition to cardiac myxoma are usually younger (mean age, 28 years) and they have less female predominance. How fast cardiac myxomas grow has never been clarified, but it appears they might grow rather rapidly (average rate of 0.15 cm per month).[5]

The clinical features of myxomas are determined by their location, size, and mobility. Most patients present with one or more of the triad of embolism, intracardiac obstruction, and constitutional symptoms; occasionally, there are no symptoms.[6] Electrocardiographic findings are nonspecific and may reflect hemodynamic or electrical alterations. Chest radiographs may reveal an alteration of the cardiac contour, enlargement of any of the cardiac chambers, and signs of pulmonary hypertension and congestion. Angiocardiography, once the standard for cardiac tumor diagnosis, has now waned in importance, but coronary arteriography may suggest the diagnosis of cardiac myxoma by showing the typical contrast opacification of an arterial branch ending in a tumor "blush".[7] Transthoracic and transesophageal echocardiography can detect the presence of the mass but rarely define its true nature, especially when it is located in the ventricular wall. In such cases, a diagnosis of tumor is usually presumed and the patient is sent for surgery. Nuclear magnetic resonance imaging can be useful in determining the nature of an intracardiac mass, especially when its anatomic location is unusual, as in our patient.

Cardiac myxomas continue to generate interest because of their uncertain histogenesis. The intramural cardiac myxoma in the left ventricle wall in our patient supports the hypothesis that the stromal cells of cardiac myxoma derive from multipotential mesenchymal cells.[8] This case also serves to remind that in a young patient with alterations in the ST segment and no cardiac risk factors, one must rule out a cardiac tumor.

REFERENCES

1. Reynen K. Cardiac myxomas. N Engl J Med 1995; 333:1610–7.
2. Burke A, Virmani R. Tumors of the heart and great vessels. In: Atlas of tumor pathology. 3rd series, fasc 16. Washington, DC: Armed Forces Institute of Pathology, 1996:21–46.
3. Lie JT. The identity and histogenesis of cardiac myxomas. A controversy put to rest. Arch Pathol Lab Med 1989;113: 724–6.
4. McCarthy PM, Piehler JM, Schaff HV, Pluth JR, Orszulak TA, Vidaillet HJ Jr, et al. The significance of multiple, recurrent, and "complex" cardiac myxomas. J Thorac Cardiovasc Surg 1986;91:389–96.
5. Malekzadeh S, Robert WC. Growth rate of left atrial myxoma. Am J Cardiol 1989;64:1075–6.
6. Pucci A, Gagliardotto P, Zanini C, Pansini S, di Summa M, Mollo F. Histopathologic and clinical characterization of cardiac myxoma: review of 53 cases from a single institution. Am Heart J 2000;140:134–8.
7. Singh RN, Burkholder JA, Magovern GJ. Coronary arteriography as an aid in left atrial myxoma diagnosis. Cardiovasc Intervent Radiol 1984;7:40–3.
8. Krikler DM, Rode J, Davies MJ, Woolf N, Moss E. Atrial myxoma: a tumour in search of its origins. Br Heart J 1992;67:89–91.

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