CASE REPORT

Unusually located left ventricular outflow myxoma: a brief review of the literature

Mustafa Cetin,¹ Musa Cakici,¹ Murat Ercisli,² Mustafa Polat¹

¹Department of Cardiology, Adiyaman University, School of Medicine, Adiyaman, Turkey
²Department of Cardiovascular Surgery, Adiyaman University, School of Medicine, Adiyaman, Turkey

Correspondence to
 Dr Musa Cakici,
 drmusacakici@gmail.com

SUMMARY

Among all myxomas, left ventricular outflow tract (LVOT) myxomas are very rare. This article reports an LVOT myxoma in a 67-year-old woman presenting with palpitations and weight loss. Surgical excision of the LVOT myxoma was performed.

BACKGROUND

Myxomas are the most frequent cardiac primary tumours; however, left ventricular outflow tract (LVOT) myxomas are extremely rare.

CASE PRESENTATION

A 67-year-old woman was admitted with frequent palpitations and a 4–5 kg weight loss over the last 2 months. There were no abnormal findings on physical examination. Her blood pressure was 130/80 mm Hg and her heart rate was 78 bpm.

INVESTIGATIONS

Initial laboratory examination showed normal findings except an elevated C reactive protein of 56 mg/L and an elevated erythrocyte sedimentation rate of 50 mm/h. The ECG was normal. Transthoracic echocardiogram showed a left ventricular mass attached to the interventricular muscular septum, which was a 1.3 cm×1.1 cm large, pedunculated and mobile (figure 1). The maximal velocity of LVOT was measured 1.3 m/s via continuous wave Doppler. There was no obstruction in the LVOT.

DIFFERENTIAL DIAGNOSIS

Three blood samples from different antecubital veins were taken again suspecting infective endocarditis, but results of the blood culture were negative.

Figure 1 Transthoracic echocardiography, apical long axis view, showing a subaortic mass partially obstructing the left ventricular outflow tract.

In order to find the source of the mass for the possibility of any metastatic tumour, a CT of the chest, the abdomen and the pelvis were performed, which showed no further abnormalities. The mass was thought to be a primary cardiac tumour including myxoma, rhabdomyoma and papillary fibroelastoma, which are the most seen cardiac tumours in this region.

TREATMENT

The mass was treated surgically owing to risk of embolism via transaortic excision (figure 2). The LVOT myxoma was completely removed and detached from the interventricular septum.

OUTCOME AND FOLLOW-UP

Macroscopic and histological examination was consistent with diagnosis of a myxoma with a maximal diameter of 2 cm. Postoperative recovery was rapid and uneventful and the patient was discharged on the eighth day of the hospitalisation.

DISCUSSION

Primary cardiac tumours are extremely rare. In autopsy series, the incidence of primary cardiac tumours is between 0.0017% and 0.19%. Nearly 75% of them are benign and most of the benign heart tumours are myxomas. About 75% originate from the left atrium, fifteen percent and 20% are located in the right atrium. Only 3–4% is found in the left ventricle (LV) and 3–4% in the right ventricle.¹

Figure 2 Image showing resected gelatinous mass postcardiac surgery.

To cite: Cetin M, Cakici M, Ercisli M, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009610

Myxomas are rarely seen in the LV. Reviewing the literature revealed 87 cases of isolated LV myxoma between 1957 and 2013.² LVOT is the least likely region they emerge from. To date, five myxomas localised on LVOT have been reported.^{3–4} Our case is the sixth case of myxoma localised on LVOT. Localisation of other tumoural settlements within LVOT is rare. The most common neoplasm seen in this region consists of metastatic tumours. The most common primary tumours are rhabdomyoma (six cases), myxoma (four cases) and papillary fibroelastoma (three cases). Primary malignant tumours have been reported in two cases.³

On a macroscopic level, typical myxomas are pedunculated and gelatinous in consistency; the surface may be smooth, villous or friable. Tumours vary widely in size, ranging from 1 to 15 cm in diameter and weighing between 15 and 180 g. About 35% of myxomas are friable or villous and these tend to present with emboli. Larger tumours are more likely to have a smooth surface and are associated with cardiovascular symptoms.⁵

There are several mechanisms by which cardiac tumours may cause symptoms. The obstruction of the circulation through the heart or heart valves produce symptoms of heart failure (dyspnoea, orthopnoea, paroxysmal nocturnal dyspnoea, pulmonary oedema, cough). The direct invasion of the myocardium may result in impaired contractility, arrhythmias, heart block or pericardial effusion with or without tamponade. Other mechanisms, like left atrial tumours may release tumour fragments or thrombi into the systemic circulation, leading to embolisation, which is usually systemic but can be pulmonary. Finally, constitutional symptoms (fever, weight loss, fatigue) are seen in around 30% of patients. Laboratory abnormalities (anaemia and elevations in the erythrocyte sedimentation rate, C reactive protein or globulin level) are present in 35%, usually those with systemic symptoms.⁶

The diagnosis of atrial myxomas can be established by echocardiography, cardiac CT, cardiac MRI, gated radionuclide blood-pool scan or cardiac catheterisation. Occasionally, the diagnosis is made by histological examination of an embolus removed at operation. Once a presumptive diagnosis of myxoma has been made on imaging studies, prompt resection is required because of the risk of embolisation or cardiovascular complications, including sudden death. The results of surgical resection are generally very good, with most series reporting an operative death rate under 5%.⁷ Recurrent cardiac myxoma after surgical excision is not rare. The frequency is estimated between 1% and 3% in sporadic forms, 12% in familial forms

and 22% in complex forms. Second recurrence, however, is rare. Only few cases of a second myxoma recurrence have been published so far. The reoccurrence of myxoma can be explained by several mechanisms: (1) incomplete resection, (2) familial predisposition and (3) intracardiac implantation of embolic fragments of the first tumour.⁸ The resection borders in our patient were two times free of tumour tissue suggesting complete excision.

Learning points

- ▶ Myxomas are the most common tumour of the heart.
- ▶ The most common neoplasm seen in left ventricular outflow tract consists of metastatic tumours.
- ▶ The most common primary tumours are rhabdomyoma, myxoma and papillary fibroelastoma.
- ▶ Surgical treatment of the myxoma is required owing to risk of embolism.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Yu K, Liu Y, Wang H, *et al.* Epidemiological and pathological characteristics of cardiac tumors: a clinical study of 242 cases. *Interact Cardiovasc Thorac Surg* 2007;6:636–9.
- 2 Jens R, Martin B, Stephan H, *et al.* A rare case of left ventricular cardiac myxoma with obstruction of the left ventricular outflow tract and atypical involvement of the mitral valve. *Eur J Echocardiogr* 2009;10:593–5.
- 3 Gurlertop Y, Yilmaz M, Erdogan F, *et al.* Left ventricular outflow tract myxoma. *Eur J Echocardiogr* 2003;4:339–41.
- 4 Elmistekawy EM, AlAtafy AA, Ahmed K, *et al.* A rare presentation of cardiac myxoma: left ventricular outflow cyst. *Asian Cardiovasc Thorac Ann* 2012;20:73–9.
- 5 Pinede L, Duhaut P, Loire R. Clinical presentation of left atrial cardiac myxoma. A series of 112 consecutive cases. *Medicine (Baltimore)* 2001;80:159–72.
- 6 Aggarwal SK, Barik R, Sarma TC, *et al.* Clinical presentation and investigation findings in cardiac myxomas: new insights from the developing world. *Am Heart J* 2007;154:1102–7.
- 7 Rahmanian PB, Castillo JG, Sanz J, *et al.* Cardiac myxoma: preoperative diagnosis using a multimodal imaging approach and surgical outcome in a large contemporary series. *Interact Cardiovasc Thorac Surg* 2007;6:479–83.
- 8 Etxebeeste J, Arrillaga L, Basurto J, *et al.* Multiple recurrent local myxoma. *Echocardiography* 1998;15:257–8.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow