

DIAGNOSIS

According to their aetiology, intracardiac masses are divided into three main classes: thrombi, tumours and vegetations.

In the workup of intracardiac masses, TTE examination provides the first diagnostic clues. The location and echocardiographic tissue characteristics of the mass, presence of wall motion abnormalities and pericardial effusion may contribute to the determination of the nature of the mass. Severe wall motion abnormalities will promote haemostasis with subsequent cloth formation. Thus, an apical mass in a patient with an apical aneurysm due to transmural infarction has a very high likelihood of being a thrombus.

The location of the intracardiac mass is another important clue. Myxoma, the most common benign tumour of the heart, has the atria, especially the left atrium, as its predilection place. Myxomas typically originate from the interatrial septum. Papillary fibroelastoma, the second most common benign cardiac tumour in adults, usually affects the left-sided valves.

Presence of pericardial effusion and heterogeneity of the mass are considered to be supportive arguments for a malignant aetiology of the mass.

In this case, TEE nicely demonstrated the attachment of the left atrial mass to the interatrial septum by a thin stalk. Due to the information obtained from TTE and TEE, left atrial myxoma is the most likely aetiology of the mass.

Over the last decade, contrast-enhanced ultrasound has made a major contribution to the determination of the nature of intracardiac masses in daily clinical practice. Especially, in the clinical setting where a thrombus has

to be differentiated from a tumorous mass, contrast-enhanced ultrasound has been proven to be an elegant technique.^{1,2} The avascular thrombus will not colour, while the vascularisation of tumours will result in contrast uptake.

In our case, the TTE images suggested different tissue characteristics of the basal and distal segments of the mass. During the discussion in the heart team, presence of thrombus attached to a tumour was postulated. Contrast-enhanced TTE demonstrated a different density in contrast uptake between the basal and the apical segment of the mass. Nonetheless, the presence of echocardiographic contrast in the distal segments rejected the diagnosis of a fresh cloth attached to tumour.

Histopathology confirmed the diagnosis of atrial myxoma and excluded a giant thrombus attached to the myxoma. The histology described the inhomogeneity of mass with several necrotic areas within the tumour. Probably, this heterogeneity contributed to the differences in contrast uptake.

In conclusion, this case is an example of the utility of contrast-enhanced ultrasound for the differentiation between thrombus and tumour.

REFERENCES

1. Kirkpatrick JN, Wong T, Bednarz JE, et al. Differential diagnosis of cardiac masses using contrast echocardiographic perfusion imaging. *J Am Coll Cardiol.* 2004;43:1412-9.
2. Mulvagh SL, Rakowski H, Vannan MA, et al. American Society of Echocardiography consensus statement on the clinical applications of ultrasonic contrast agents in echocardiography. *J Am Soc Echocardiogr.* 2008;21:1179-201.