Right atrial myxoma: echocardiographic appearance

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A 67-year-old asymptomatic male was admitted for evaluation of his arterial hypertension. The routine echocardiographic study revealed a large tumour in the dilated right atrium. The mass appeared to arise from the posterior wall of the right atrium. After infusion of a contrast agent, the mass appeared to fill with the contrast agent, ruling out the possibility of the mass being a clot.

Transesophageal study revealed a round mass arising from the posterior right atrial wall just adjacent to the extrusion of the superior vena cava. The patient subsequently underwent cardiac surgery and a cardiac tumour was excised that proved to be a cardiac myxoma. In this case we present echocardiographic images and the macro- and microscopic view of the right atrial myxoma.

**Key words**
Echocardiography; Transesophageal; Cardiac myxoma

**Case report**

A 67-year-old asymptomatic male was admitted for evaluation of his arterial hypertension. The routine echocardiographic study revealed findings of a large tumour in the dilated right atrium. The mass appeared to arise from the posterior wall of the right atrium (Figure 1, Supplementary material online, video 1). After infusion of a contrast agent (Sonovue, Bracco, Italy), the mass appeared to fill with the contrast agent, ruling out the possibility of the mass being a clot. (Figure 2, Supplementary material online, video 2).

Transesophageal study revealed a round mass arising from the posterior right atrial wall just adjacent to the extrusion of the superior vena cava. The patient subsequently underwent cardiac surgery and a cardiac tumour was excised. Macroscopically, the lesion consisted of a soft, polypoid and lobulated mass, with maximum diameter of 6.1 cm, which exhibited a haemorrhagic appearance, in continuity with the right atrial wall (Figure 3A). The cut surface revealed areas of whitish-yellow colour and sites of calcification. Microscopically, the mass consisted of areas of stellate, round, polygonal cells surrounded by abundant, loose, myxoid stroma. There was extensive haemorrhaging with plenty of iron-laden macrophages. Other microscopic findings included surface thrombosis, Gamma-Gandy bodies, areas with lymphocytic aggregates and sites of fibrosis, calcification, and ossification (Figure 3B). Mitosis, pleomorphism and/or necrosis were absent. Although the cells were strongly positive for vimentin and, weakly positive for the endothelial markers CD31 and CD34, they were negative for Pan-cytokeratin, PGM-1, SMA and desmin immunohistochemical markers. The diagnosis of cardiac myxoma was made.

Primary tumours arising in the heart are rare, accounting for <5% of all cardiac tumours and only 25% of them are malignant. In adults, cardiac myxoma is the most common cardiac tumour, accounting for 20–50% of all cases. Approximately 75% of myxomas occur in the left atrium, with the remainder appearing mainly within the right atrium.1

Cardiac myxomas may result in systemic symptoms such as fever and weight loss (as a result of secretion of interleukin-6,2), embolic phenomena (as a result of fragmentation) and thrombo-embolism from the tumour surface—but sudden death, syncope and haemoptysis may also occur. Myxoma can also cause valvular obstruction or may prolapse and cause regurgitation of the affected valve leading to heart failure. T Surgical removal is usually proposed as the best cure.

Echocardiography is the most useful diagnostic tool for such tumours and contrast agents are the most efficacious means of differentiating between such masses and clots. Although uncommon, myxomas can occur in the right atrium and should be included in the differential diagnosis of right-sided intracardiac masses.

**Supplementary material**

Supplementary material associated with this article can be found in the online version.

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Figure 1  (A) Apical four-chamber view showing a large ground rounded mass occupying the right atrium. (B) Transesophageal midesophageal bicaval view showing a large mass attached to the posterior right atrial wall just adjacent to the extrusion of superior vena cava. RV, right ventricle; LV, left ventricle; RA, right atrium; LA, left atrium; SVC, superior vena cava.

Figure 2  After infusion of a contrast agent (Sonovue, Bracco, Italy) the mass appears as a persistent filling defect (A) that filled with contrast agent ruling out the possibility of being a clot (B).

Figure 3  (A) Panoramic view of the tumour mass showing haemorrhagic appearance. The excised part of atrial wall can be recognized on the top. Inset shows the cut surface with whitish areas. (B) Microscopic view that shows stellate, round, polygonal cells surrounded by abundant, loose, myxoid stroma. Inset: a great number of iron-laden macrophages and Gamma-Gandy bodies are recognized (H&E stain 200). (C) Transesophageal study showing the mass arising from the posterior right atrial wall. For comparison, we present the excised mass and its echocardiographic appearance. The hypoechoic areas into the tumour represent haemorrhagic areas. Also compare the echocardiographic base of the mass arising from the atrial wall and its macroscopic view.

References
