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A rare case of large right atrial type B thrombus

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Topic(s):
Cardiac Magnetic Resonance: Cardiac Masses

Citation:
European Heart Journal - Cardiovascular Imaging (2019) 20 (Supplement 2), ii316

Funding Acknowledgements:
No funding

Introduction: Right heart thrombi are an infrequent pathology, which may immitate other forms of cardiac masses. The literature describes three types of right heart thrombi. Type A thrombi are mobile, serpigenous and associated with thromboembolic events derived from peripheral veins. Type B thrombi are less mobile, locally formed on the tricuspid annulus and associated with cardiac structure abnormalities. Type C thrombi are an intermediate category.

Case presentation: An 84 year old woman with personal history of atrial fibrillation and chronic obstructive pulmonary disease under oxygen therapy was admitted to the Emergency Department of our Hospital due to progressive dyspnea. Physical examination revealed signs of right heart failure. On auscultation a systolic ejection type murmur of 3/6 located in the cardiac apex and diffuse bilateral pulmonary crackles were audible. Transthoracic echocardiography demonstrated left ventricular diameters within normal range with preserved ejection fraction, severe atrial dilatation and minimal pericardial effusion. There was right ventricular dilation and hypertrophy as well as flattening of the interventricular septum. Doppler study revealed severe tricuspid regurgitation accompanied by increased pulmonary artery pressure (SPPA=55 mmHg). In the four chamber view, a suspicious echogenous mass was visualized in the right atrium. Transesophageal echocardiography further revealed a lobular mass (32 x 13 mm) with irregular contours inside the right atrium seemingly connected to the septal leaflet of the tricuspid annulus but not synchronized with the movement of the valve. In order to exclude pulmonary embolism, the patient underwent computed tomographic pulmonary angiography (CTPA), which confirmed the presence of the mass and demonstrated dilation of the pulmonary trunk and its branches with no filling defects. Cardiac magnetic resonance was subsequently performed, a technique that has the comparative advantage of both precise localization and tissue characterization. Concerning localization the mass appeared attached to the posterior wall of the right atrium with a stalk and not the tricuspid valve as suggested by the ultrasound. In early dynamic first pass and late gadolinium enhancement the mass was not enhanced which supports the diagnosis of a mass that has no vascularity, a finding compatible with thrombus.

Conclusion/Discussion: Based on the accumulated data, the differential diagnosis was restricted to right heart thrombus, tumor of the right atrium (myxoma) and mass of the tricuspid valve (tumor, fibroelastoma, calcified vegetation and carcinoid tumor). In our case, right heart thrombus type B is the most probable diagnosis and seems associated with chronic immobilization and minor endothelial injury or stasis of the blood in the right side of the heart from pulmonary hypertension. The patient was discharged on anticoagulation and further follow up was scheduled.
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