Invasion of lung mesenchymal chondrosarcoma into the left atrium via the pulmonary vein detected on transoesophageal echocardiography

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A patient with a right upper lobe lung mass presented with a stroke and peripheral embolism. A left atrial mass prolapsing through the mitral valve was seen on transthoracic echocardiogram, but it remained undiagnosed. Transoesophageal echocardiography (TEE) enabled the origin of the left atrial mass (Panels A and B, Supplementary data, Video 1) to be traced to the right upper pulmonary vein. Doppler interrogation of the right upper pulmonary vein suggested a total occlusion. The elongated, multilobular, friable appearance, and the origin of the mass from the pulmonary vein (Panels C and D, Supplementary data, Video 2) allowed it to be distinguished from alternative causes of a mobile mass prolapsing across the mitral valve such as left atrial myxoma, thrombus, or infection.

The patient died of an extension of cerebral infarction and a post-mortem confirmed that the aetiology of the left atrial mass was due to primary lung tumour invasion into the right upper pulmonary vein and its extension into the atrium. Histology showed primary mesenchymal chondrosarcoma of the lung, a rare tumour normally found in soft tissue.

Although TEE has been used to diagnose tumour invasion of the pulmonary vein in lung neoplasm, the large size of this tumour mass leading to it prolapsing across the mitral valve is noteworthy. The differential diagnosis of a prolapsing left atrial mass should include this possibility.

Tumour cells can gain access to the systemic circulation via the pulmonary veins in patients with lung neoplasm and this mechanism for cerebral and peripheral embolism can be established by the use of TEE with special attention to the examination of all the pulmonary veins.

Panels A–C show mid-oesophageal left ventricular view with imaging plane from 76° to 126°, showing the tumour mass in the left atrium (Panel A) prolapsing through the mitral valve (Panels B and C, and Supplementary data, Video 1). Panel D shows the a mid-oesophageal view of the interatrial septum (IAS) in the long axis 124° showing the tumour mass originating from the right upper pulmonary vein (Supplementary data, Video 2). The right upper pulmonary vein orifice (arrowed) is seen to enter the left atrium adjacent to the IAS describing an anterior to posterior course (view achieved by pulling TEE probe back to reveal a more superior view of the origin of the mass, and clockwise rotation to patient’s right side until the IAS came into view). LA, left atrium; MV, mitral valve; LV, left ventricle; AV, aortic valve; RA, right atrium; or, orifice; IAS, interatrial septum; RUPV, right upper pulmonary vein.

Supplementary data

Supplementary data are available at European Journal of Echocardiography online.