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Multimodality imaging of multiple recurrent myxomas: the role of three dimensional echocardiography

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A 33-year-old lady who underwent left atrial myxoma resection was found to have on a 3 years follow up transthoracic echocardiography (E) a multilobular mass in the right atrium.

A 2D transesophageal echocardiogram (TEE) was performed. Two Multi-lobulated masses were seen in the right atrium(RA); one bigger attached by a peduncle to the atrial wall in between the interatrial septum (IAS) and the superior vena cava and one smaller attached to the inferior RA wall; a remnant likely a suture was seen on the right side of the fossa ovalis; another small mass was noted on the left atrial (LA) side of the IAS; a small mass attached close to the posteromedial commissure and P3 scallop of the mitral valve was also detected. The RA mass was partially protruding into the tricuspid valve during diastole with no significant obstruction to flow.

Three dimensional TEE allows an anatomical imaging able to identify the peduncles of two right atrial masses and three LA masses that were confirmed at surgery and consistent with cardiac myxoma at histopathology : one close the previous resection area, one at the opening of the LAA (panel A, white arrow) and one close to the posterior commissure of mitral valve (panel B, yellow arrow) and that were not seen by 2D. Magnetic resonance imaging (MRI) with contrast identified and showed opacification of : two masses in the RA with the pedicles ; - one mass on the LA side of interatrial septum; - one mass close to mitral valve posterior commissure ; however it was not able to detect the small mass close to the LAA.

In our case 2D Echocardiography and MRI were able to identify 4 of the 5 recurrences found at surgery. 3D TEE was the only technique able to identify all 5 lesions. MRI is considered the gold standard for detecting cardiac tumor masses; however, even after careful review, it was not possible to identify the presence of the mass close to LAA. In particular 3D TEE was able to image the left atrial masses by an "en face view" of the left atrium from above. In addition, the unique 2D planes in unconventional views allow a more clear identifications of the peduncles of the masses in the right atrium. The identification of the peduncles is mainstay for the diagnosis of recurrent myxomas and exclude other tumors like metastasis or sarcomas. In fact multiple recurrence are very rare in particular if we consider that are in the two atria. Genetic tests for Carney complex were negative. The MRI allowed to confirm the vascularization of the contrast and to identify the peduncles of two masses in the right atrium.

A multimodality imaging is able to correctly detect recurrent myxomas by identifying the anatomical features and the vascularization and lead to the diagnosis ; 3DE was the only technique able to correctly identify all the recurrent myxomas and and its use has the potential for being considered the key adjunctive modality for the anatomy when advanced surgical plan is required.

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