

Left atrial membranous structure discovered on echocardiography

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Left atrial (LA) anatomy and physiology provide a synergistic value in proper cardiac function. Transthoracic echocardiography is the first-choice modality for its assessment. Additional LA structures that may be visualized are thrombi, vegetations, heart tumors, external compression or a diaphragm dividing the LA in cor triatriatum [1, 2], though, sometimes these structures prove to be normal anatomic variants [3]. In some cases, multimodality imaging, including cardiac magnetic resonance, computed tomography, transesophageal, and contrast echocardiography, is necessary for final diagnosis of LA pathology. The last one may be particularly useful when other methods remain inconclusive since it provides additional functional information, such as the presence of communication between the chambers [4].

A 48-year-old woman, without a history of cardiovascular disease, was referred to our cardiac outpatient center for further assessment of an additional membranous structure in the LA visualized on transthoracic echocardiography. She was suffering from dry cough for many years, arthralgia (mainly involving the small joints of the upper limb – the metacarpophalangeal and interphalangeal joints), and muscle stiffness. Moreover, she had two miscarriages. Raynaud's phenomenon was not present. Transthoracic echocardiography showed a linear structure in the upper part of the LA, visible in all echocardiographic views, without signs of flow obstruction (Figure 1A–D). There was no pericardial effusion at other sites. Color Doppler investigation revealed no communication between the sides of the abnormal structure. The probability of pulmonary hypertension was low. Multiple options were initially taken into account, such as cor triatriatum, LA dissection, or external com-

pression. There were no signs of other cardiac lesions that can accompany cor triatriatum, such as atrial septal defect, anomalous venous return, bicuspid aortic valve, or dilated sinus venosus. Transthoracic echocardiography was performed again several weeks later. Although the view of the LA had not changed, evident pericardial effusion was present in all echocardiographic views. This image suggested that the membranous structure was the LA wall compressed by pericardial fluid, which was confirmed by cardiac magnetic resonance (Figure 1 E, F). The distinctiveness of this case derived from the anatomy of the heart resulting in the fluid accumulating first by the LA, in the oblique sinus of the pericardium, which was atypical and led to further investigation. The presence of pericardial effusion required extended diagnostics, which revealed highly elevated anti-nuclear antibodies HEp-2 (nuclear pattern). Due to the presence of clinical and serological symptoms indicating an autoimmune systemic disease, the patient was hospitalized at the rheumatology department with the diagnosis of an undifferentiated connective tissue disease as she failed to meet the criteria for a specific autoimmune disorder. The amount of pericardial effusion and the view of the LA were stable during further follow-up.

Our diagnostic process has led us from suspecting a cor triatriatum sinister, through pericardial effusion, to the diagnosis of undifferentiated connective tissue disease. Although echocardiography remains the imaging modality of choice for visualization of pericardial effusion, there is a need for multimodality imaging in cases with unusual presentation. Since it has various underlying etiologies and multiple clinical pictures, in-depth diagnostics is required.

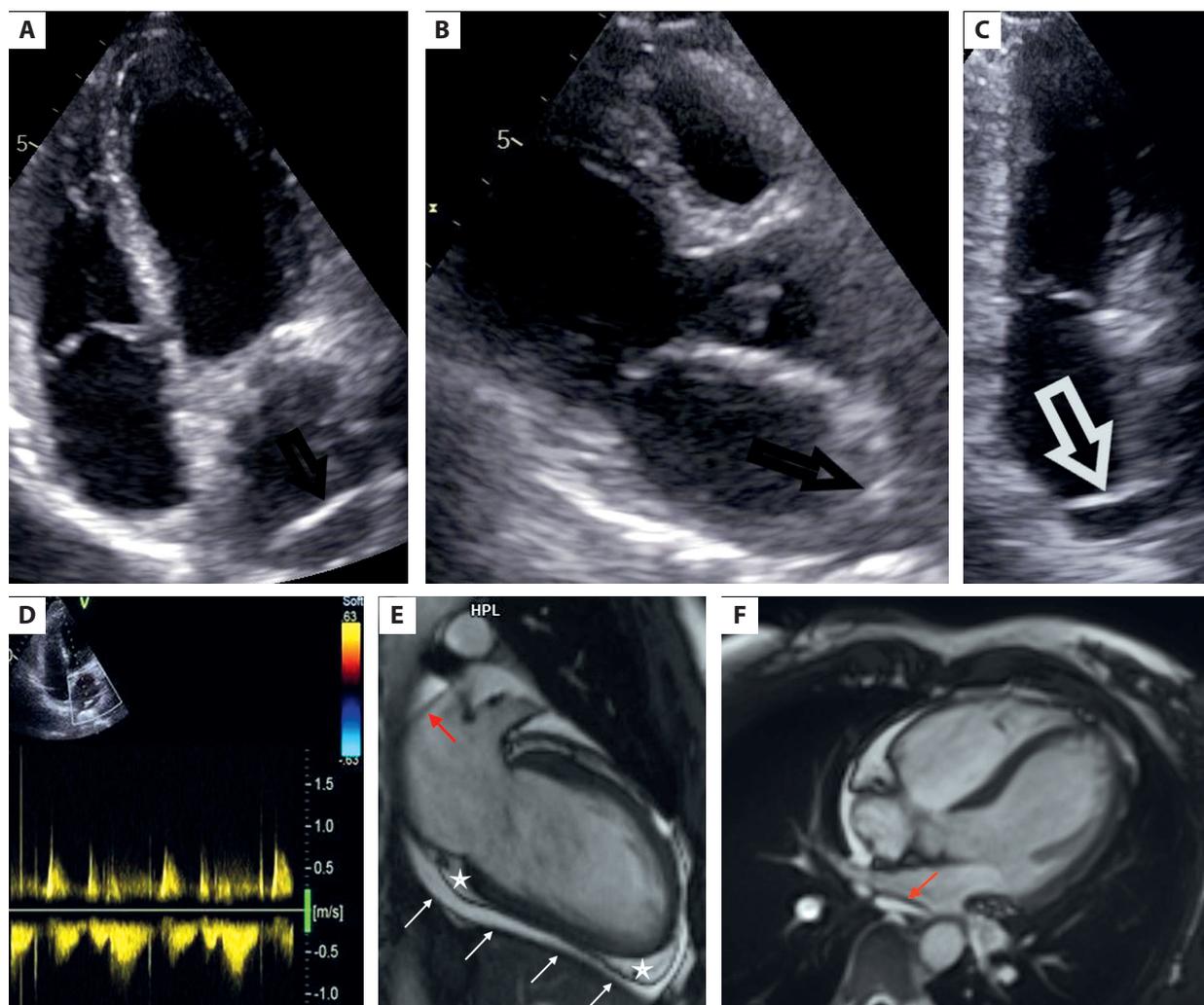


Figure 1. A–D. Transthoracic echocardiography. A–C. Additional membranous structure in the left atrium (arrows); four-chamber view (A), parasternal long axis view (B), two-chamber view (C). D. No significant gradient across the membrane on continuous wave Doppler; four-chamber view. E, F. Cardiac magnetic resonance imaging performed a few months later showing pericardial effusion mainly in the oblique sinus of the pericardium (red arrows); fluid along the inferior wall (white arrows); epicardial fat (asterisks)

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