

A large left atrial appendage thrombus revealed on transthoracic echocardiography as a cause of acute lower limb ischemia

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An 85-year-old female with hypertension, mitral stenosis (MS), and atrial fibrillation (AF) of undetermined duration, with suboptimal anticoagulation, was admitted due to exacerbation of heart failure. The treatment of heart failure and acenocoumarol therapy were optimized. Routinely performed transthoracic echocardiography (TTE) revealed moderate MS (mean gradient 6 mm Hg) (Figure 1A), signs of right ventricular overload, a slightly enlarged left atrium, and an abnormal highly

mobile “soft” structure 25 × 14 mm in size (Figure 1B; Supplementary material, Video S1), fixed in the place of the left atrium appendage (LAA) (Figure 1C; Supplementary material, Video S2). A LAA thrombus was suspected. Unfortunately, two days after admission the patient presented severe pain in the right lower limb and signs of acute limb ischemia (ALI) such as pallor, cold limb, paresthesias, and pulselessness. On bedside TTE performed immediately, the previously detected additional

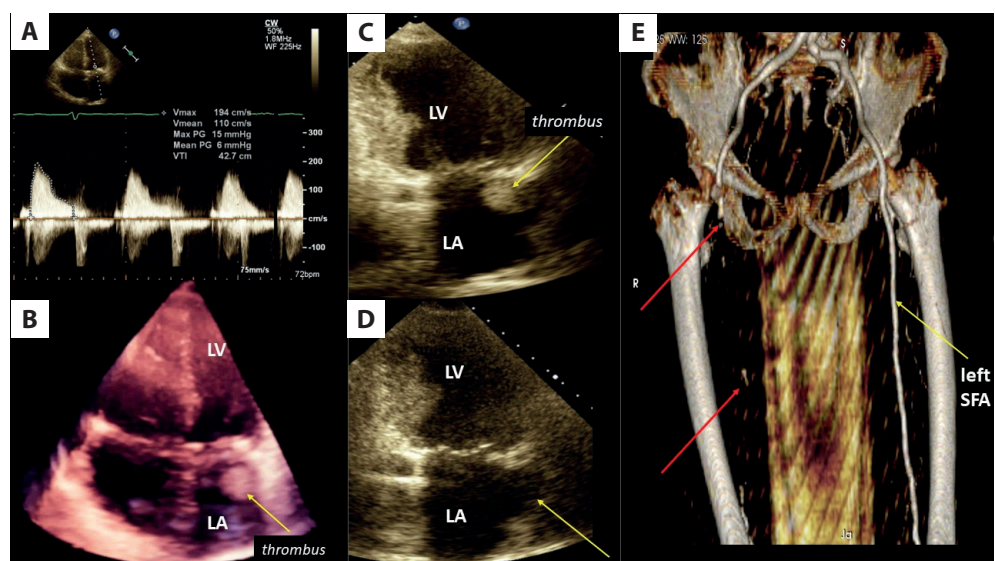


Figure 1. A. Transmittal mean gradient (6 mm Hg) indicating moderate mitral stenosis; continuous wave Doppler; B. Additional mass (thrombus) visible in the slightly enlarged left atrium (the arrow); 3DTTE, four-chamber view; C. Additional structure (thrombus) fixed in the place of the left atrium appendage (the arrow); 2D TTE, two-chamber view; D. Absence of pathological mass in the area of the left atrium appendage (the arrow); 2D TTE, two-chamber view; E. Lower-extremity computed tomographic angiography showing occlusion of the distal part of the right common femoral artery, right superficial femoral artery and deep femoral artery (red arrows). Normal flow in the left superficial femoral artery (yellow arrow)

Abbreviations: LA, left atrium; LV, left ventricle; SFA, superficial femoral artery; 2D TTE, two-dimensional transthoracic echocardiography; 3D TTE, three-dimensional transthoracic echocardiography

mass located in the LAA was not visualized (Figure 1D), which confirmed that the clot had detached from the heart.

Lower-extremity computed tomographic angiography showed occlusion of the distal part of the right common femoral artery, entire superficial femoral artery, and deep femoral artery (Figure 1E). The patient was urgently operated on by vascular surgeons, who removed thrombi from the occluded arteries, with a satisfactory treatment result.

ALI induced by acute peripheral arterial occlusion (APAO) is one of the most common causes of urgent interventions in vascular surgery [1], associated with a high risk of limb loss and increased mortality [2]. Most frequently ALI is caused by embolism, thrombosis, or rarely by dissection or trauma [1–3]. Importantly, embolism originating in the heart or aorta may lead not only to APAO but also to transient ischemic attack or stroke, with all their serious consequences. Valvular and non-valvular AF are common causes of cardioembolic events [4]. Al-Azzawi et al. [1] evaluated 120 patients with APAO on the upper (45 pts) and lower (75 pts) extremities, who underwent surgical embolectomy. TTE performed during the postoperative period detected a cardiac source of embolism in 62.4% of patients, including MS in 12.5% and AF in 33.3%. The prevalent source of cardioembolism are thrombi located in the LAA [4]. Transesophageal echocardiography is the imaging of choice for the LAA. It is also possible to identify thrombus on TTE, however, its sensitivity remains low [4].

In the described case, TTE, showing a large additional mobile mass in the LAA area, proved to be diagnostic for a cardiac source of embolism. Balloon embolectomy was urgently performed, as standard treatment of ALI caused by an embolus, in accordance with current recommendations [3]. It seems reasonable to perform at least TTE in patients with ALI, as soon as possible, to detect a potential cause of embolism. In exceptional situations, TTE is sufficient to make a diagnosis, as was the case in the described patient

with very high embolic potential. In patients with non-valvular AF and unstable oral anticoagulation percutaneous LAA closure may be an alternative method for stroke prevention [5]; however, in our patient, the coexistence of AF and moderate mitral valve stenosis was confirmed.

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/kardiologia_polska.

Article information

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