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Diagnostic and treatment challenges in a patient with massive atrial thrombosis, pulmonary embolism and stroke

Authors:
R Copciag¹, AO Ciobanu², I Corlan², D Vinereanu², ¹University Emergency Hospital - Bucharest - Romania, ²Carol Davila University of Medicine and Pharmacy, University and Emergency Hospital Bucharest, Cardiology Department - Bucharest - Romania,

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Introduction. Acute pulmonary embolism (PE) is a diagnostic and therapeutic emergency. Early anticoagulation or, if necessary, thrombolytic therapy, are mandatory in order to reduce morbidity and mortality. However, both diagnosis and treatment may be challenging, especially when the clinical presentation suggests an acute neurological event.

Clinical case. 76-year old patient, without known cardiovascular disease, presented in the emergency department with sudden onset of right sided paresis, dizziness, dyspnoea and hypotension. Emergency brain CT showed left frontal hypodense area, and also signs of previous ischemic strokes. Blood tests showed elevated NT-proBNP and D-dimer levels, kidney failure and hepatic cytolysis. ECG revealed minor right bundle branch block, negative T waves in V1V2 and S1Q3D3 pattern, suggesting increased right heart pressure. Transthoracic echocardiography (TTE) showed multiple thrombi in both atria, the largest one up to 30 mm in diameter, and aneurysm of the interatrial septum (IAS) with possible communication at this level. Chest and abdominal CT revealed nearly occlusive endoluminal thrombi in both main pulmonary arteries, extending to all lobar pulmonary arteries, but also thrombi in the distal segment of the right renal artery. At this point, the diagnosis was intracardiac thrombosis with pulmonary and paradoxical embolism, cerebral and renal.

The PE severity index (PESI score) of 146, associated with significant atrial thrombosis and pulmonary hypertension were in favor of thrombolytic treatment. However, recent ischaemic stroke is an absolute contraindication for thrombolysis, thus unfractionated heparin and hemodynamic support were the only treatment options for the patient.

Once the patient’s clinical status improved, the transesophageal echocardiography (TTE) confirmed the atrial septal defect with bidirectional shunt and a large thrombus in the right atrium (RA) passing through the defect during each cardiac cycle, creating a false impression of left atrial (LA) thrombosis.

Breast cancer was diagnosed during patient’s hospitalization as the cause of her extensive thrombotic status.

Conclusion. We present a rare case of a patient with signs of stroke and hypotension, due to massive right atrial thrombosis with pulmonary and paradoxical embolism through a large atrial septal defect. Anticoagulation only successfully led to patient's complete recovery, with no signs of atrial thrombosis at discharge.
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