

## Pericardial Doppler flow in acute myocardial infarction

### *Flujo pericárdico por Doppler en un infarto agudo de miocardio*

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A 92-year-old man, with arterial hypertension for about 10 years, presented to the emergency room complaining of chest pain with prolonged duration, repeated in the last 4 days. Physical examination revealed a mild mitral regurgitation murmur, blood pressure was 140/70 mmHg, heart rate was 70 beats/minute, and there was a pericardial friction rub. The electrocardiogram showed sinus rhythm with q waves in D<sub>II</sub>, D<sub>III</sub>, aVF, ST segment elevation and biphasic T wave in D<sub>II</sub>, D<sub>III</sub>, aVF, V<sub>1</sub>, V<sub>3-4</sub>R. High-sensitivity Troponin T test was positive.

Transthoracic echocardiography in the coronary care unit showed circumferential 10 mm pericardial fluid (**Figure - Panel A** [subxiphoid view]), and there was a color Doppler flow, laminar, in systole and diastole, near the right ventricle (**Figure - Panel B** [same view], **Panel C** [pulsed-wave Doppler in the pericardial space showing low-velocity

systolic and diastolic flow], y **Video 1 of the supplementary material**). Given the context of acute myocardial infarction, free wall rupture with hemopericardium was suspected. Echocardiography with intravenous agitated saline was performed and the contrast did not pass from the right heart in the pericardium (**Figure - Panel D** [subxiphoid view], **Video 2 of the supplementary material**), proving the integrity of the right ventricle free wall. The patient was treated conservatively, as he refused coronary angiography. In the next days the pericardial fluid did not increase and the clinical course was uneventful until discharge.

Flow in the pericardium is usually associated with a rupture of a cardiac chamber. A color Doppler flow of low velocities has been observed in pericardial effusion and was attributed to an accelerated displacement of fluid with cardiac contractions. It has been reported in a case of hemopericardium after coronary bypass and in a patient with pericarditis after radiofrequency ablation. In the case we report it complicated the diagnosis because it suggested right ventricle free wall rupture. Contrast echocardiography with agitated saline proved useful for a correct diagnosis.

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