


Right ventricular thrombus and pulmonary embolism in patient with anterior myocardial infarction

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A 28-year-old man was admitted in the intensive care unit (ICU) for severe hypoxaemia with venous jugular distension 48 h after acute onset of asthenia without chest pain. Cardiovascular risk factors comprised only tobacco use. Anterior myocardial infarction (MI) was suspected because of elevated troponin level associated with a severe apical, septal, and anterior wall akinesia (see figure). ECG showed normal sinus rhythm with persistent ST-segment elevation and Q wave in the anterior precordial leads. Interestingly, apical akinesia extended to the right ventricular (RV) apex with a thrombus located along the right septal wall (Panels A and C). Anterior wall transmural necrosis extended to RV with a thrombus located in the RV apex, which was confirmed by magnetic resonance imaging (MRI) (Panel B); and coronary angiogram showed a monotoncular proximal left anterior descending coronary artery occlusion with smooth coronary arteries, suggestive of acute plaque rupture in a severe tobacco smoker. Revascularization was not attempted because of the delay between symptoms onset and presentation, and lack of viability on MRI. In addition, computed tomography scan showed a right segmental pulmonary embolism (Panel D). During hospitalization, the follow-up was marked by a pericardial effusion that required emergency pericardiocentesis at day 6 and a rapid ventricular tachycardia with cardiac arrest at day 8 successfully treated by external cardioversion. Implantable cardioverter defibrillator was implanted at day 16 and the patient was discharged from ICU. During follow-up no other cause (thrombophilia or embolic) was found other than heavy tobacco use. In patients with MI, RV extension is usually considered as a complication of inferior wall ST-elevation myocardial infarction (STEMI). However, MRI study reported that apical RV infarction during anterior MI is common. Importantly, the prevalence of RV infarction was similar in patients with anterior or inferior (65 vs. 47%) STEMI. In addition, a recent experimental study (Bodi et al. Cardiovasc Res 2010) demonstrated that prolonged left anterior descending occlusion may result in a large area of RV necrosis (30 ± 5%).