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Vasoespastic angina, plaque erosion, ischemia and cardiac arrest: Four of a kind or straight?

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Vasoespastic angina, plaque erosion, ischemia and cardiac arrest: Four of a kind or straight?

Short title: Atherosclerotic plaque erosion due to coronary spasm

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A 56-year-old woman, current smoker with a history of arterial hypertension and dyslipidemia was previously studied due to recurrent syncope with chest pain associated in recent months. Normal cardiac morphology and function was assessed by echocardiography and a coronary computed tomography angiography showed a noncalcified plaque with a 40% stenosis in the left anterior descending coronary artery (LAD) (Figure 1A). Single antiplatelet therapy and a statin were started.

One month after, she was admitted to the intensive care unit after resuscitation from out-of-hospital cardiac arrest. Post-return of spontaneous circulation electrocardiogram showed an ST-segment elevation in anterior leads which led to an emergent coronary angiography, but no obstructive coronary artery disease was found.

During admission, the patient presented satisfactory neurologic and cardiac evolution with significantly increased troponin levels. Anterior myocardial edema (Figure 1B) was found on T2 mapping images without late gadolinium enhancement (Figure 1C) in cardiac magnetic resonance. With suspicion of vasospastic angina, acetylcholine (Ach)

invasive provocative test was performed. The first Ach bolus of 20 mcg in the LAD induced chest pain along transient ST-segment elevation in the anterior leads and severe spasm in mid anterior descending coronary artery (Figure 1D, 1E) relieved by intracoronary nitroglycerin. In addition, optical coherence tomography assessment of the LAD revealed a small erosion in the mid segment (Figure 1F). Dual antiplatelet therapy, dihydropyridine calcium channel blocker and long-acting nitrates were started and a subcutaneous implantable cardioverter defibrillator was implanted in secondary prevention.

We report a case of an out-of-hospital cardiac arrest secondary to acute ischemia due to vasospastic angina and with the additional finding of plaque erosion. In this scenery, a causative rol of spasm leading to plaque erosion have been proposed (straight) and we believe is more feasible than the simultaneous coincidence of several factors (four of a kind).

Article information

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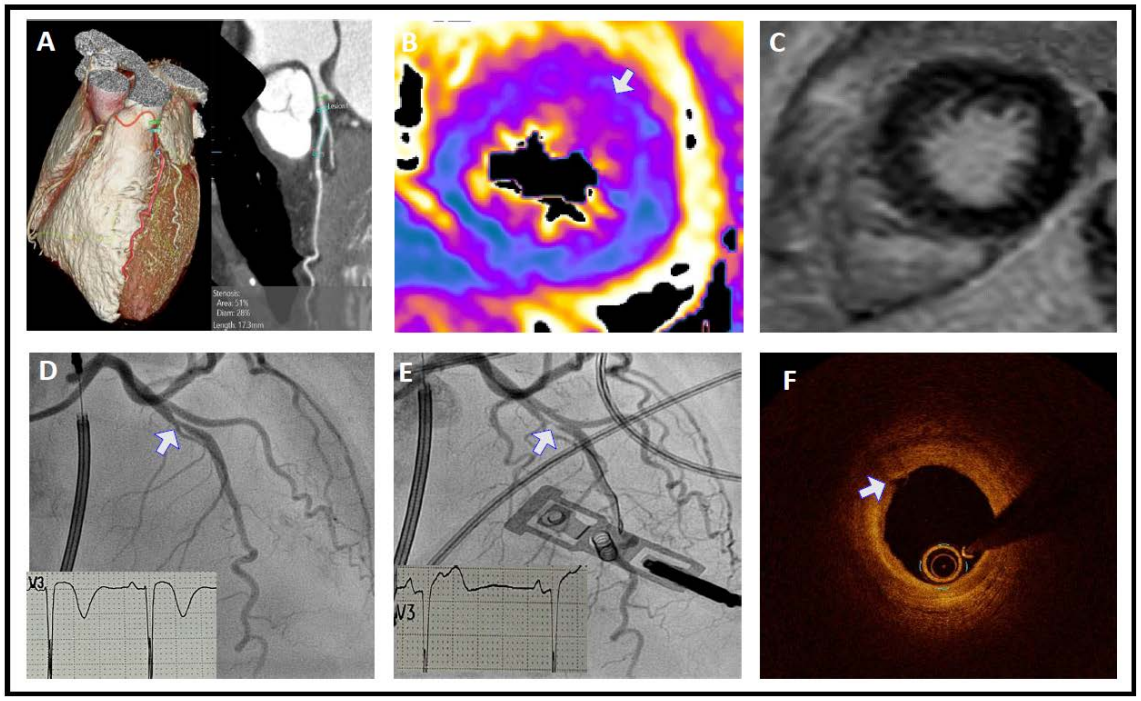

Figure 1. A. Computed tomography angiography; noncalcified plaque with a 40% stenosis in the left anterior descending coronary artery. **B, C.** Cardiac magnetic resonante; anterior myocardial edema on T2 mapping (**B**) without late gadolinium enhancement (**C**). **D, E.** Severe spasm in mid anterior descending coronary artery. **F.** Optical coherence tomography, small erosion in the mid segment