Contribution of guidance by optical coherence tomography (OCT) in rescue management of spontaneous coronary artery dissection

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Spontaneous coronary artery dissection (SCAD) is a rare pathology with a poor prognosis, affecting young patients, often peripartum women, without cardiovascular risk factors.1 The SCAD management remains controversial. In the case of haemodynamic instability with coronary occlusion, rescue percutaneous intervention may be required but still challenging.2

A 43-year-old nurse was admitted for acute myocardial infarction complicated by cardiogenic shock. Emergent angiography revealed a total occlusion of the left anterior descending (LAD) coronary artery. Recanalization was complex, finally achieved utilizing a guidewire (GW1) introduced until a diagonal branch, providing a TIMI-2 coronary flow. The presence of linear intraluminal haziness suggested a diagnosis of SCAD.

Considering the haemodynamical instability and EKG persistent ST-elevation, we discussed stent implantation to fix the suspected intimal tear. We first performed OCT imaging that provided diagnosis of SCAD and showed GW1 positioned outside of the true lumen (Panel A).

We introduced a second GW2 progressing easily until distal LAD, but worsening coronary flow.

OCT imaging on GW2 (Panel B) showed that GW2 was in the true lumen from proximal to distal LAD and the abnormal course of GW1. GW2 has reached the distal LAD staying in the true lumen as confirmed by the fact that GW2 was surrounded by the three classic layers of the arterial wall throughout the pullback.

Then we performed stenting on GW2, restoring a TIMI-3 coronary flow. Haemodynamic parameters improved, ST segment was normalized and chest pain disappeared. The use of OCT allowed us to identify with certainty that GW2 was in the true lumen and avoid stenting on a GW in the false one with the risk of LAD occlusion and the consequences that entails in a young patient.

Six months later, the patient remains asymptomatic, with a near normal left ventricular function and the negative treadmill test.

Our case highlights the limitations of angiography alone in management of SCAD and, in this critical situation, the ability of OCT to correctly identify the right position of the GW to ensure safe stenting if needed.

References

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