



## CASE REPORT

# Spontaneous left main dissection treated by percutaneous coronary intervention

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### PALAVRAS-CHAVE

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**Abstract** Spontaneous coronary artery dissection is a rare cause of acute coronary events or sudden cardiac death. The clinical presentation is highly variable and prognosis varies widely, depending mainly on how rapidly it is diagnosed. Prompt treatment is also essential, and includes medical management, percutaneous coronary intervention and surgical revascularization.

We describe the case of a young woman presenting with spontaneous coronary artery dissection of the left main coronary artery, first diagnosed as coronary thrombus, who underwent successful percutaneous coronary stenting. This report highlights the need to include spontaneous coronary artery dissection in differential diagnosis of chest pain in young women and that distinguishing between coronary thrombus and coronary artery dissection is not always straightforward. To our knowledge this is the fourth case of left main stenting in a patient with spontaneous coronary artery dissection described in the literature.

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### Disseção do tronco comum tratada com intervenção coronária percutânea

**Resumo** As disseções coronárias espontâneas são uma causa rara de eventos coronários agudos ou de morte súbita cardíaca. A sua apresentação clínica e prognóstico são altamente variáveis e dependem, principalmente, da rapidez com que o diagnóstico é feito. O tratamento imediato é também essencial, e inclui abordagem médica, intervenção coronária percutânea e revascularização cirúrgica.

Descrevemos o caso de uma mulher jovem admitida com disseção espontânea do tronco comum da artéria coronária esquerda, primeiramente diagnosticada como trombo intracoronário. A paciente foi submetida a angioplastia percutânea mediante implantação de *stent*, com bom resultado angiográfico final. Este caso clínico enfatiza que

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a disseção coronária espontânea deve ser incluída no diagnóstico diferencial de dor torácica em mulheres jovens e, ainda, que a distinção entre trombo coronário e disseção coronária pode não ser simples. Este é o quarto caso de disseção do tronco comum tratado percutaneamente, mediante implantação de *stent*, que encontramos descrito na literatura.

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## Introduction

Spontaneous coronary artery dissection (SCAD) is a rare cause of acute coronary events or sudden cardiac death.<sup>1,2</sup> It often affects young women and usually involves a single coronary artery, mainly the left anterior descending (LAD) artery.<sup>1-4</sup> SCAD has traditionally been observed in three groups of patients: those presenting with significant coronary atherosclerotic disease, women in the peripartum and early post-partum period or using oral contraceptives, and cases without obvious associated causal factors, termed idiopathic.<sup>5,6</sup> The clinical presentation is highly variable and depends on the location, extent and severity of SCAD.<sup>1</sup> Prognosis varies widely, but is generally dismal in the absence of prompt recognition and treatment, when the clinical presentation is sudden cardiac death, and in peripartum women.<sup>1,3</sup> Treatment strategies include medical management, percutaneous coronary intervention (PCI) and surgical revascularization, the latter procedure being particularly indicated in cases of left main dissection, multivessel involvement and failed PCI procedures.<sup>1,7</sup>

We report the case of a young woman who presented with SCAD of the left main and underwent successful PCI.

## Case report

A previously healthy 36-year-old woman presented to our institution, transferred from another center, with a diagnosis of non-ST elevation myocardial infarction, in cardiogenic shock (Killip class IV), for urgent coronary artery bypass graft (CABG) surgery. Her only cardiovascular risk factor was tobacco use and she had been on oral contraceptives for the last few years.

Previously that day, she had been admitted to another center for prolonged chest pain. Her physical examination was normal. The ECG demonstrated diffuse ST-segment depression, maximum 2 mm in V4-5 and I, and showed 1.5-mm ST-segment elevation in aVR. She was given 250 mg aspirin and 300 mg clopidogrel and treated with anti-ischemic drugs. Transthoracic echocardiogram (TTE) showed mild to moderate left ventricular (LV) systolic dysfunction, posterolateral akinesia, and moderate mitral regurgitation (MR) due to posterior leaflet restriction.

Due to recurrence of chest pain she underwent coronary angiography, which showed 50% distal left main coronary artery (LMCA) stenosis, 90% ostial LAD stenosis with an image suggestive of thrombus, occlusion of the left circumflex artery (LCx) at its origin and an angiographically

normal right coronary artery. During catheterization, she became progressively unstable with severe hypotension and sustained chest pain. An intra-aortic balloon pump (IBP) was inserted and dopamine was initiated. The patient was transferred to our center for emergent CABG.

On admission, the patient was in cardiogenic shock (BP 70/50 mmHg), despite IBP and vasopressor support (VPS), with sustained and severe chest pain. The ECG showed accentuation of the previous alterations (Figure 1).

In view of the patient's unstable clinical condition, the need for immediate revascularization was balanced against the potential delay while awaiting preparation for bypass surgery. At a multidisciplinary meeting, it was therefore decided to attempt a percutaneous approach as first-line therapy.

The LMCA was engaged with a 7-Fr JL4 guiding catheter (Cordis Corp., Miami Lakes, FL) (Figure 2; Video 1), and a 0.014-inch Runthrough guidewire (Terumo Medical Corp., Somerset, NJ) was passed to the distal LAD. An attempt was made to aspirate thrombotic material using an Export AP aspiration catheter (Medtronic Corp., Minneapolis), but with no success and no change in the angiographic appearance of the lesion. Neither the LCx nor its emergence from LMCA were visible, and we were unable to pass a guidewire through it. A more detailed evaluation of the lesions in several different projections showed an image suggestive of LMCA dissection (Figure 3A and B; Video 2A and B). Intravascular ultrasound was considered but was not used because of the patient's hemodynamic instability and the certainty of the diagnosis. Subsequently, the LMCA was predilated using a 3.0 mm × 15 mm balloon (TREK, Abbott Vascular, Abbott Park, IL) followed by the implantation of a drug-eluting stent (4.0 mm × 23 mm Xience Prime, Abbott Vascular, Abbott Park, IL), with a good angiographic result. After stenting, the LCx became visible and both the LAD and LCx presented no angiographic lesions (Figure 4A and B; Video 3A and B).

The patient had a favorable evolution, with IBP and VPS withdrawn within 48 hours and with no complications. Her serum troponin I peaked at 43.2 ng/ml and TTE showed mild LV systolic dysfunction and mild to moderate MR. Given her positive clinical course, on day four she was transferred back to the original hospital.

## Discussion

Spontaneous coronary artery dissection (SCAD) is a rare and under-recognized cause of acute coronary events or sudden cardiac death.<sup>1,2</sup> Its incidence ranges from 0.07 to 1.1% in

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