

Spontaneous left anterior descending artery dissection as a cause of myocardial infarction with non-obstructive coronary arteries in a young woman

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Introduction: Myocardial infarction with non-obstructive coronary arteries (MINOCA) is a heterogeneous clinical entity that accounts for approximately 5–10% of all acute myocardial infarction (AMI) cases. Among its underlying mechanisms, spontaneous coronary artery dissection (SCAD) represents an increasingly recognized cause, particularly in young women without traditional cardiovascular risk factors. Prompt diagnosis is crucial, as management strategies differ from those for atherosclerotic coronary disease.¹⁻³ We present a case of a young female patient with MINOCA due to spontaneous dissection of the left anterior descending (LAD) artery.

Case report: 44-year-old woman was hospitalized due to chest pain, elevated high-sensitivity troponin levels, and a normal ECG, presenting with clinical features consistent with NSTEMI. Transthoracic echocardiography revealed preserved left ventricular systolic function, no significant valvular or structural abnormalities, and a subtle segmental wall motion abnormality of the apical region consistent with hypokinesia. Coronary angiography demonstrated a type 2 spontaneous dissection of the distal left anterior descending (LAD) artery (**Figure 1**). The patient was treated with dual antiplatelet therapy (aspirin and clopidogrel), a statin, an ACE inhibitor, and other supportive therapy, resulting in

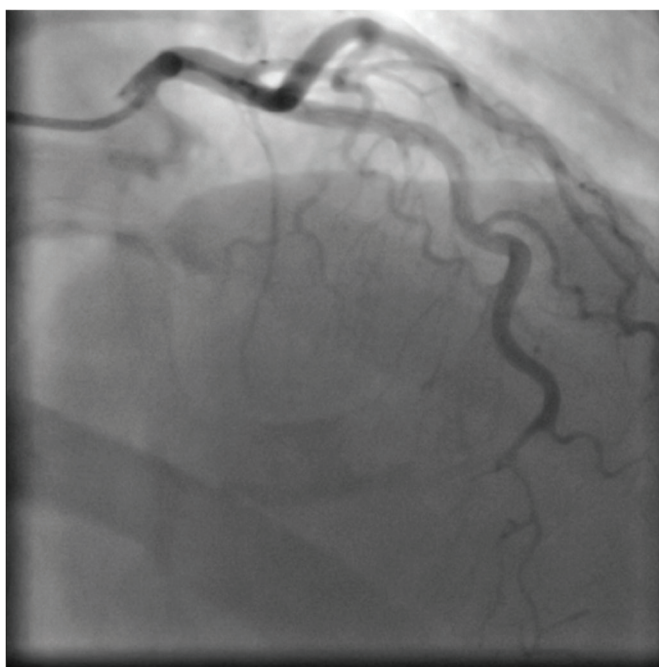


FIGURE 1. Angiographic view of a type 2 dissection in the distal left anterior descending artery.

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FIGURE 2. Cardiac magnetic resonance imaging showing the area of acute myocardial injury and edema with late gadolinium enhancement.



FIGURE 3. Angiographic image showing healing of the distal left anterior descending artery dissection.

normalization of cardiac enzyme levels. Twenty-four hours after discharge, she was re-admitted due to recurrent chest pain and a renewed increase in cardiac biomarkers; repeat coronary angiography showed no progression of the LAD dissection. After an additional nine days of conservative in-hospital management, the patient was discharged home. Due to the persistent apical hypokinesia, cardiac magnetic resonance imaging (CMR) was performed, demonstrating an area of acute myocardial injury in the apical region of the left ventricle (**Figure 2**). However, because of ongoing myocardial edema, the extent of fibrosis could not be reliably quantified. Two months after the initial event, repeat coronary angiography demonstrated recovery of flow in the distal LAD segment (**Figure 3**). Clinically, the patient remained asymptomatic, and follow-up echocardiography showed no significant changes compared to the prior examination.

Conclusion: Spontaneous coronary artery dissection is an important and often underrecognized cause of MINOCA, predominantly affecting young to middle-aged women without conventional cardiovascular risk factors. Early identification through coronary angiography and, when necessary, intracoronary imaging or CMR is crucial for accurate diagnosis and appropriate management. Conservative treatment is generally preferred in hemodynamically stable patients, as most dissections heal spontaneously over time.

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