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### Conservative Management of Spontaneous Coronary Artery Dissection: A Case Report

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## Objective

To describe a case where spontaneous coronary artery dissection (SCAD) is managed medically, without the need for surgical or catheter-based intervention.

## Introduction

Spontaneous coronary artery dissection (SCAD) is a rare but fatal cause of acute coronary syndrome (ACS), often seen in young healthy women without any significant cardiovascular disease. If not treated early, it can lead to sudden cardiac death. We report an interesting case of ACS due to SCAD.

## Case Presentation

A 40-year-old woman presented to the emergency department with retrosternal chest pain at rest, associated with diaphoresis, palpitations, and nausea. Her past medical history was significant for hypertension and type 2 diabetes.

On presentation, blood pressure was elevated to 150/81 mmHg, remaining vitals were normal. Initial electrocardiogram (ECG) showed normal sinus rhythm with no ischemic changes. Laboratory tests revealed an elevated high sensitivity troponin level to 104 ng/L (ref: <19 ng/L). Given her clinical picture and biomarker elevation, there was concern for acute coronary syndrome. Echocardiography displayed an ejection fraction of 60% and no regional wall motion abnormalities. Coronary angiography was performed, which revealed non-obstructive coronary artery disease (CAD) with dissection of the mid-to-distal right posterolateral branch of the right coronary artery (RCA). No intervention was performed given mild extension of dissection and location. Of note, she did have recurrent chest pain with subsequent resolution. Given her overall symptomatic improvement, she was eventually discharged on metoprolol succinate, aspirin, and a moderate dose statin.



Figure 1. Coronary angiography showing non-obstructive coronary artery disease (CAD) with dissection of the mid-to-distal right posterolateral branch of the right coronary artery (RCA).

## Diagnostic Workup

- EKG = NSR, no ischemic changes
- High sensitivity troponin = 104 ng/L (ref: <19 ng/L)
- Echocardiography → EF 60% with no wall motion abnormalities
- Coronary angiography → non-obstructive coronary artery disease (CAD) with dissection of the mid-to-distal right posterolateral branch of the right coronary artery (RCA)

## Discussion

SCAD involves dissection of an epicardial coronary artery that is not secondary to atherosclerosis, trauma, or iatrogenic causes. It is the cause of up to 1-4% of ACS cases, occurs mostly in women, and is the most common cause of pregnancy-associated myocardial infarction (MI).<sup>1-4</sup> The left anterior descending (LAD) artery is the most common artery affected, although it can affect any artery.<sup>5</sup>

The pathogenesis of SCAD involves the sudden disruption of the intimal layer, leading to dissection of the tunica media and subsequent formation of an intramural hematoma within a false lumen, and eventual compression of the true lumen.<sup>6</sup> This leads to reduced coronary blood flow and MI. Acute coronary syndrome is the most common presentation, though clinical manifestations of SCAD can range from stable angina, to cardiogenic shock and life-threatening arrhythmias.

When diagnosing SCAD, coronary angiography should be the first-line diagnostic imaging study. Other modalities including intravascular ultrasonography and optical coherence tomography allow for more detailed visualization of the artery wall and can be used to aid diagnosis.<sup>7</sup>

Management of SCAD varies depending on the case presentation and the severity of the condition. Patients with extensive dissections resulting in recurring symptoms and myocardial ischemia usually require percutaneous coronary intervention (PCI), while surgery is preferred for multi-vessel disease.<sup>8</sup> Medical therapy is indicated for cases with mild involvement, and may include aspirin, P2Y12 inhibitors, beta blockers, and nitrates.<sup>9</sup>

Generally, patients with SCAD have a good prognosis especially with early detection and treatment. Recurrence of SCAD occurs in a minority of cases.

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