The Postpartum Heartache: SCAD Disguised as Acute Myocardial Infarction

Sabin Tripathee MD, Ruchi Devbhandari MD, James Boris MD, Alyssa Kang DO, Julia Dziubinski DO, Dexter Jacob MD, FACC
Jeffferson Einstein Montgomery Hospital, East Norriton, PA, 19403

INTRODUCTION

Spontaneous coronary artery dissection (SCAD) is a rare but serious condition, constituting approximately 1% of acute coronary syndromes. It is predominantly seen in younger women, particularly postpartum and those on oral contraceptives. This non-atherosclerotic dissection involves the separation of coronary artery wall layers, leading to intramural hematomas and luminal tears, often triggered by physical or emotional stress. SCAD presents similarly to acute myocardial infarction, with chest pain as the hallmark symptom. The gold standard for diagnosis is coronary angiography. We present a 38-year-old postpartum female with SCAD.

CASE PRESENTATION

A 38-year-old female, six months postpartum and with a history of non-ST segment elevation myocardial infarction, presented to the emergency department with ongoing substernal chest pain radiating to the left shoulder. Previous coronary angiography had shown a 10-20% occlusion of the mid-left anterior descending artery. Physical examination was unremarkable. An electrocardiogram showed ST elevations in V5 and V6 (Figure A). Initial troponin was 0.07, peaking at 39.95. She received full-dose aspirin and was started on intravenous heparin drip. Subsequent coronary angiography revealed no significant occlusion but identified SCAD in the proximal obtuse marginal artery (OM1) with distal filling defects (Figure B). Echocardiography demonstrated left ventricular ejection fraction of 45% with lateral wall hypokinesis. She was initiated on aspirin, clopidogrel, metoprolol succinate, lisinopril and rosuvastatin. The patient was discharged with a plan to repeat coronary angiography in three months.

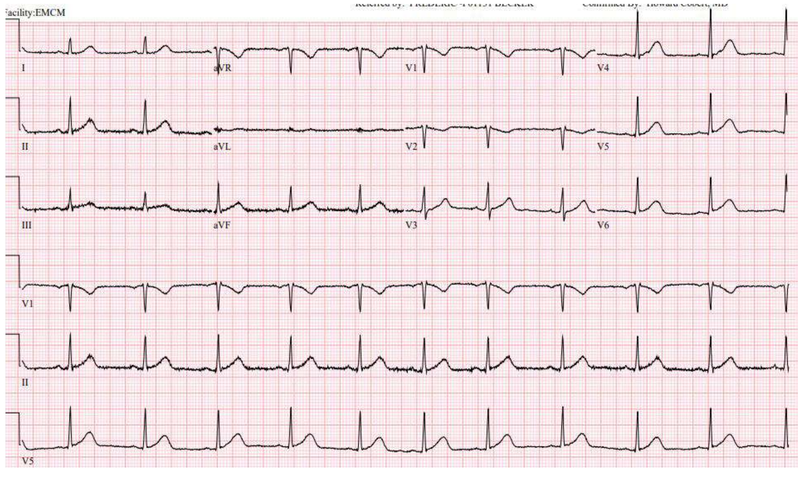

Figure A: EKG showing ST segment elevation in lead V5 and V6

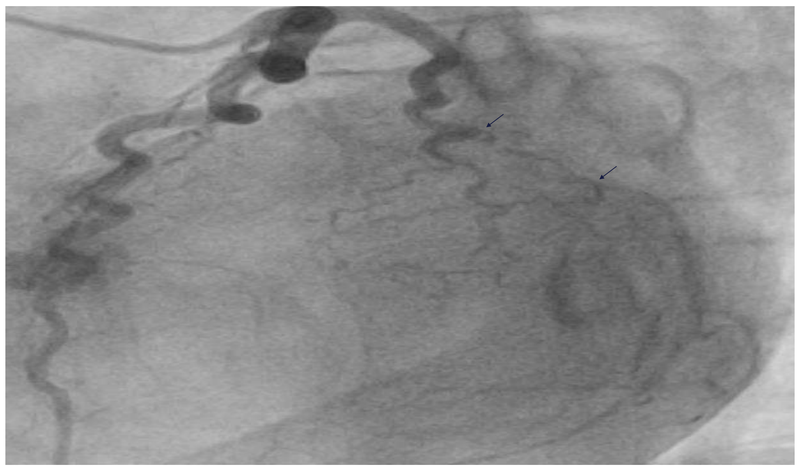

Figure B: Coronary angiography showing spontaneous coronary artery dissection in the proximal portion of OM1 with distal filling defects (arrows)

DISCUSSION

SCAD during pregnancy typically occurs within six weeks postpartum but can also appear during pregnancy and up to 18 months postpartum.

While not fully understood, elevated progesterone and hormonal changes may compromise vessel walls, with increased cardiac output, blood volume, and childbirth stress intensifying the risk. Unlike obstructive coronary artery disease, the management of SCAD prioritizes conservative treatment due to the fragility of the affected vessels. Percutaneous coronary intervention is generally avoided due to technical challenges and the heightened risk of procedural complications. Stable patients with low-risk lesions are managed with long-term aspirin, beta-blockers, and short-term clopidogrel, with statins added in cases of dyslipidemia. Beta-blockers are particularly pivotal in management, as their negative inotropic effects reduce blood pressure and arterial wall stress, thereby decreasing the risk of dissection propagation and recurrence. Coronary artery bypass grafting is reserved for severe cases involving multiple vessels, left main coronary artery, and hemodynamically unstable patients.

Our patient was managed conservatively with dual antiplatelet therapy, metoprolol, and rosuvastatin highlighting the tailored approach required for effective SCAD management.

CONCLUSION

SCAD is linked to high mortality and increased risk of heart failure and recurrence. Early diagnosis and proper management might improve outcomes and reduce long-term morbidities. Reproductive-aged women with a history of SCAD should receive comprehensive counseling on recurrence risks, especially if planning future pregnancies.

REFERENCES

Kim ESH. Spontaneous coronary-artery dissection. N Engl J Med 2020; 383(24):2358–2370. doi:10.1056/NEJMra2001524CrossRefPubMedGoogle Scholar

Saw J, Humphries K, Aymong E, et al. Spontaneous coronary artery dissection: clinical outcomes and risk of recurrence. J Am Coll Cardiol 2017; 70(9):1148–1158. doi:10.1016/j.jacc.2017.06.053FREE Full TextGoogle Scholar

Hayes SN, Kim ESH, Saw J, et al. Spontaneous coronary artery dissection: current state of the science: a scientific statement from the American Heart Association. Circulation 2018; 137(19):e523–e557. doi:10.1161/CIR.0000000000000564Abstract/FREE Full TextGoogle Scholar

Main A, Saw J. Percutaneous coronary intervention for the treatment of spontaneous coronary artery dissection. Interv Cardiol Clin 2019; 8(2):199–208. doi:10.1016/j.iccl.2018.11.008CrossRefGoogle Scholar

Tweet MS, Kok SN, Hayes SN. Spontaneous coronary artery dissection in women: what is known and what is yet to be understood. Clin Cardiol 2018; 41(2):203–210. doi:10.1002/clc.22909CrossRefGoogle Scholar

Tweet MS, Eleid MF, Best PJ, et al. Spontaneous coronary artery dissection: revascularization versus conservative therapy. Circ Cardiovasc Interv 2014; 7(6):777–786. doi:10.1161/CIRCINTERVENTIONS.114.001659Abstract/FREE Full TextGoogle Scholar

Lettieri C, Zavalloni D, Rossini R, et al. Management and long-term prognosis of spontaneous coronary artery dissection. Am J Cardiol 2015; 116(1):66–73. doi:10.1016/j.amjcard.2015.03.039CrossRefPubMedGoogle Scholar

Vijayaraghavan R., Verma S., Gupta N., & Saw J. Pregnancy-related spontaneous coronary artery dissection. Circulation, 2014, Nov 18. 130 (21): 1915-20.