

# Complicated case of spontaneous dissection of left main extending into proximal left anterior descending artery and ramus

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## Introduction

- With just about 300 cases recorded in the literature, spontaneous coronary artery dissection (SCAD) is a rare cause of acute myocardial ischemia.
- It is usually fatal, and it is only discovered after a postmortem investigation in young people who have died suddenly.
- More than 70% of instances were documented in women, especially during pregnancy and peripartum, with the highest risk in the postpartum period.
- With the advent of sophisticated coronary angiography, our knowledge of SCAD has grown enormously since its initial characterization in 1931.
- An irregularity in the ST-segment, as well as an elevation of heart damage indicators, can be seen on electrocardiograms.
- The extent to which the coronary arteries are involved varies. The main culprit is commonly said to be the left main coronary artery.

## Case presentation

- We present a case of a 28-year-old female patient, G3P3, now postpartum about 2 weeks, who presented to the ER with acute onset of chest pain. She was hypertensive on arrival 150/105 with mildly elevated troponin.
- Her pregnancy was complicated by HTN pre-delivery and post-delivery. She denied taking any antihypertensive medications.
- EKG taken at arrival revealed NSTEMI, and so she was started on a heparin drip and taken to the cardiac catheterization lab

## Hospital Course

- Catheterization documented spontaneous coronary artery dissection involving proximal vessels including very large ramus intermedius, proximal LAD and propagation into the left main (Figure 2) with compromise and severe narrowing of about 75% of the left main (Figure 1).
- Furthermore, she was noted to have brisk flow so an intra-aortic balloon pump (IABP) was placed and was set to augment at 50%. She was hemodynamically stable and was not requiring pressor support or inotropes.

## Hospital Course (continued) and Imaging

- Cardiothoracic (CT) surgery was consulted for possible CABG. Given that she remained hemodynamically stable, CT surgery agreed that the best initial treatment is conservative with BP management and IABP. Trans-thoracic echocardiogram (TTE) showed EF >55%, no regional wall motion abnormalities, no valvular abnormalities, and a small pericardial effusion. The IABP was removed and the patient complained of chest discomfort with exertion. High sensitivity troponin was 1886, down from peak of 34608 on 1/11/22, but troponins started trending back up. Coronary CTA was performed and was negative for pulmonary embolism. She continued to complain of chest pain with exertion and was hypotensive with BP of (86/54) after receiving sublingual nitroglycerine. Given the change in her clinical status, CT surgery was asked to re-evaluate her for surgical intervention. She was started on Clopidogrel and received a total of 4 doses. Patient was determined to be a high-risk surgical candidate and could require left ventricular assistant device (VAD) postoperatively. Therefore, decision was made to transfer the patient to Medical City Heart and Spine, Dallas for higher level of care.



Figure 1

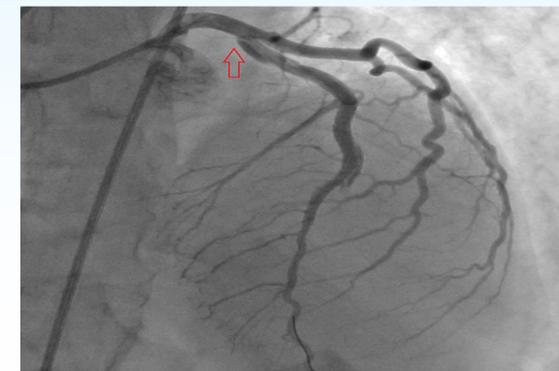


Figure 2

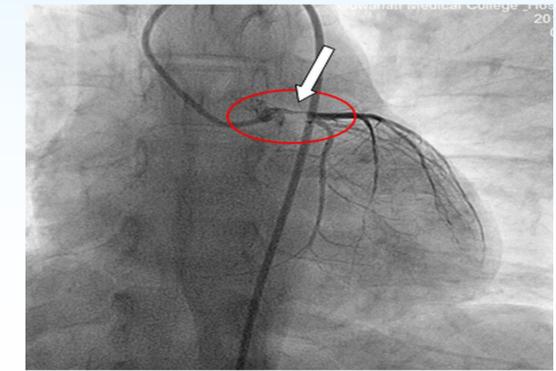


Figure 3

## Hospital Course after Transfer and Discussion

- After transfer, she underwent another emergent cardiac catheterization which revealed further propagation and compromise of the LM coronary artery which was very severely narrowed to 98% with staining noted in the proximal LAD (Figure 3). The ramus intermedius appeared to be unchanged with severe compromise of the origin through the proximal segments but reconstitution in the more distal portion of the vessel. The mid and distal LAD appeared to be intact with no dissection. Left ventricular end-diastolic pressure (LVEDP) was markedly elevated at 35 to 40 mmHg. Percutaneous catheter-based heart pump was placed for maximal support. Patient was urgently taken to the operating room for coronary artery bypass grafting (CABG) of the LAD and the ramus. The patient tolerated the procedure well and was taken to intensive care unit in stable condition.

## Conclusion

- This case illustrates that a rare condition like spontaneous dissection of left main extending into proximal left anterior descending artery and ramus is often under-diagnosed among patients presenting with ACS. Connective tissues disorders, young women, systemic inflammation, and pregnancy are all risk factors for SCAD, which are typically worsened by triggering events. Patients who survive their initial SCAD presentation have an excellent long-term outcome. Nevertheless, repeat episodes are common, and these patients should be continuously monitored by cardiovascular experts. For stable patients with ischemia resolution, conservative medical therapy is usually sufficient. However, in a small percentage of patients, revascularization with percutaneous coronary intervention or CABG may be required. Ongoing prospective research will presumably shed light on SCAD patients' long-term cardiovascular consequences.