Spontaneous left main dissection complicating with cardiogenic shock: fighting with a catastrophe

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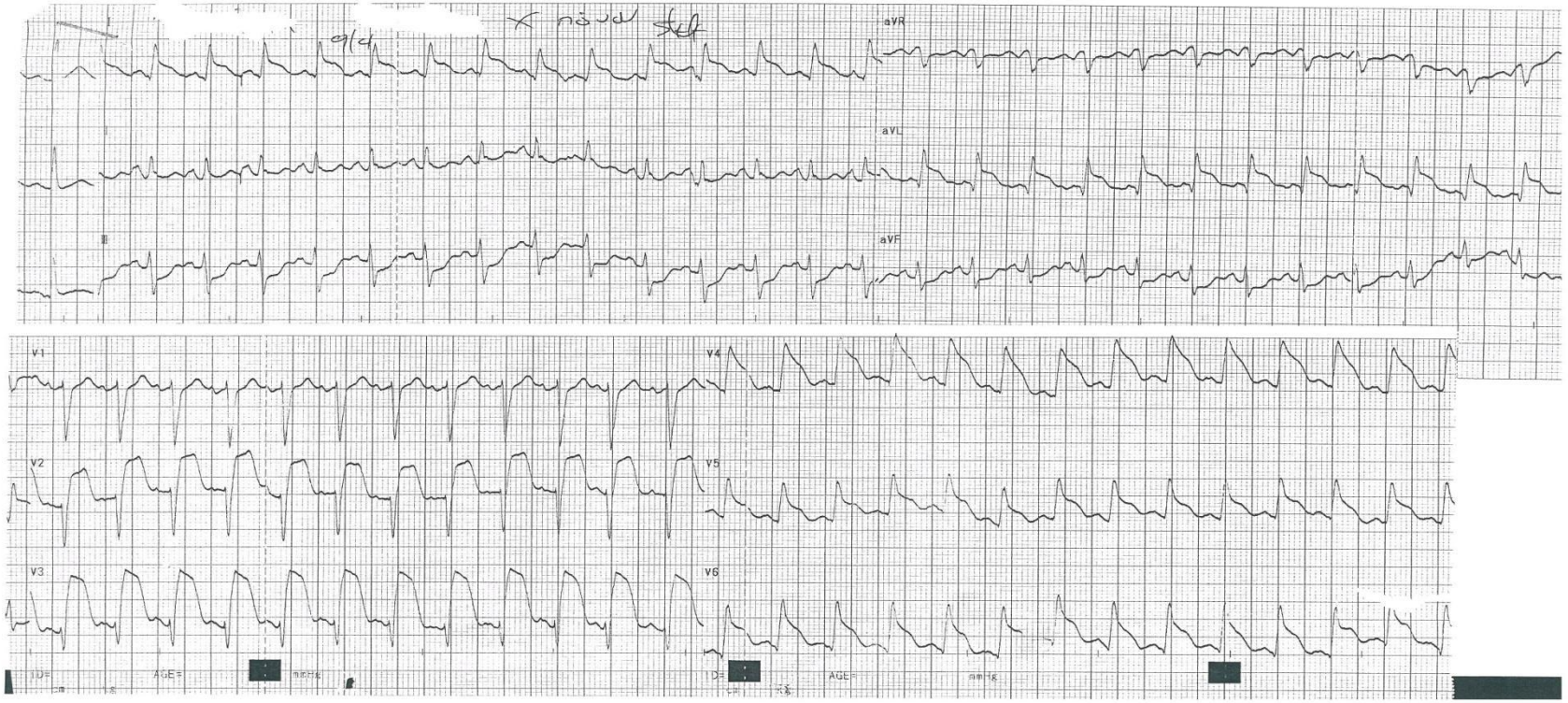
Case Presentation

- 42 years old caucasian woman
- No previous medical history
- No risk factors for coronary artery disease
- No peripartum period

She was admitted to a district general hospital with no cardiac catheter laboratory facilities, due to acute sub-sternal pain. The prompt diagnosis at the time was of an anterior MI. Thrombolytic treatment was started immediately, with regression of the angina and almost normalization of the ECG changes.

On the eighth in hospital day, the patient suffered another episode of substernal chest pain, with hypotension and signs of left ventricular heart failure .The ECG showed extensive ST elevation in leads I, aVL, V1-V6.



- Patient was transferred to our institution.
- On arrival she was in **cardiogenic shock** (EF: 25%).
- She was urgently transferred to the cardiac catheterization laboratory were she was **intubated** and an **intra-aortic balloon pump** was advanced.

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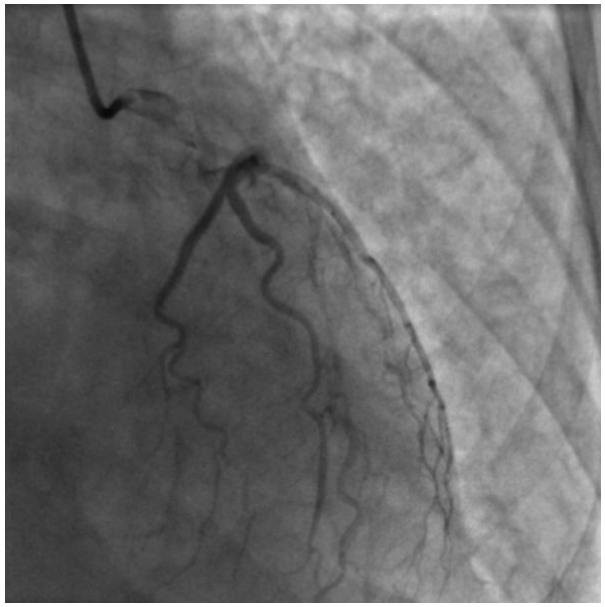
Coronary angiography revealed the presence of a long dissection of the left coronary trunk



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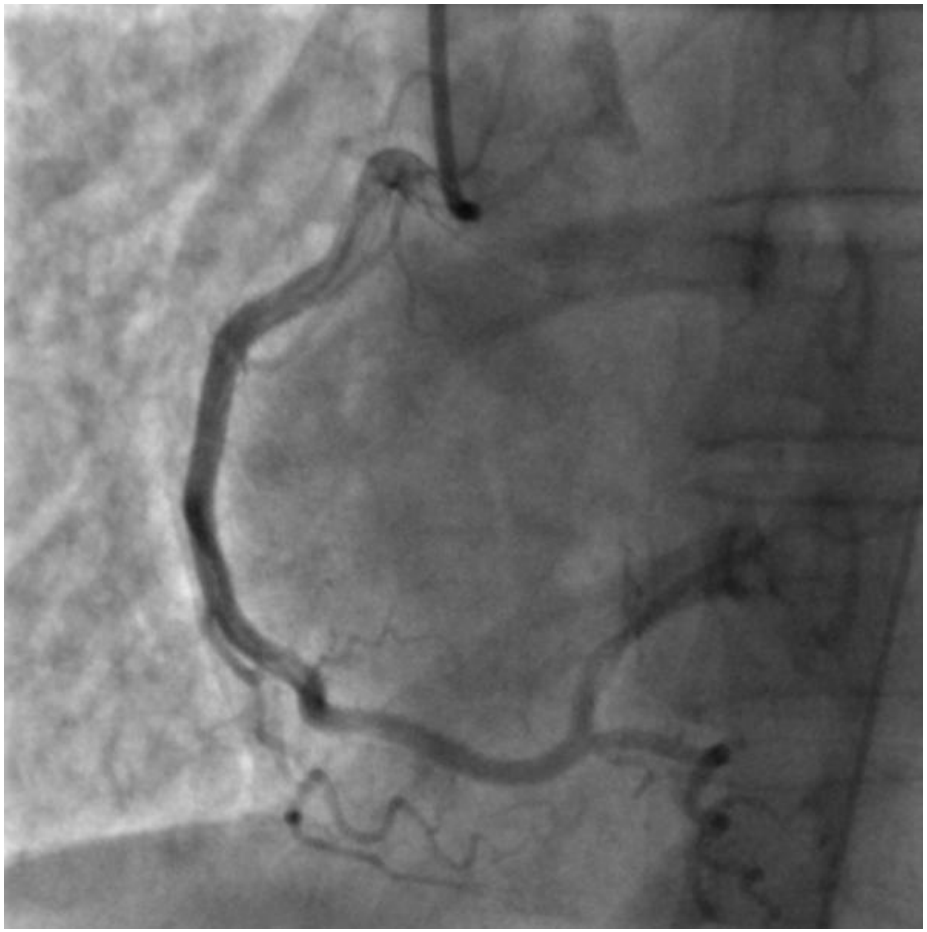
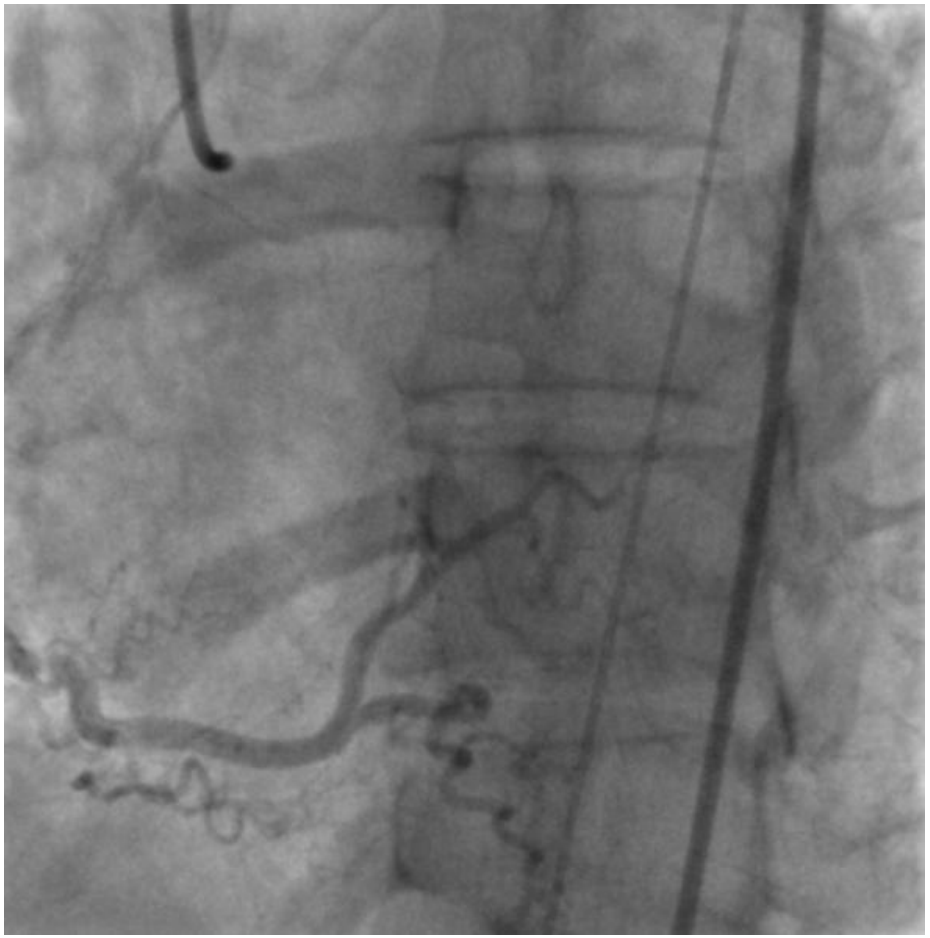


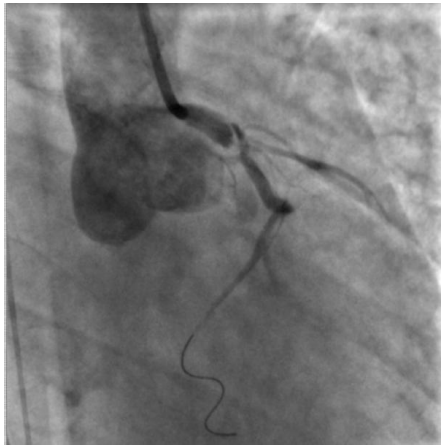


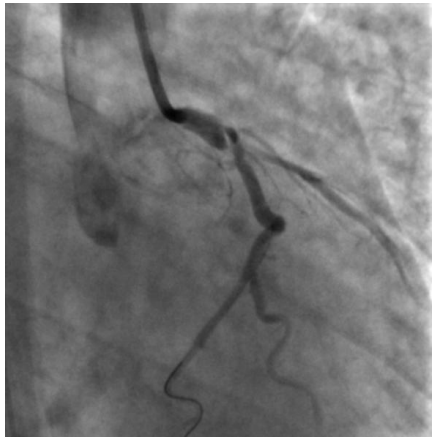
OPTIONS

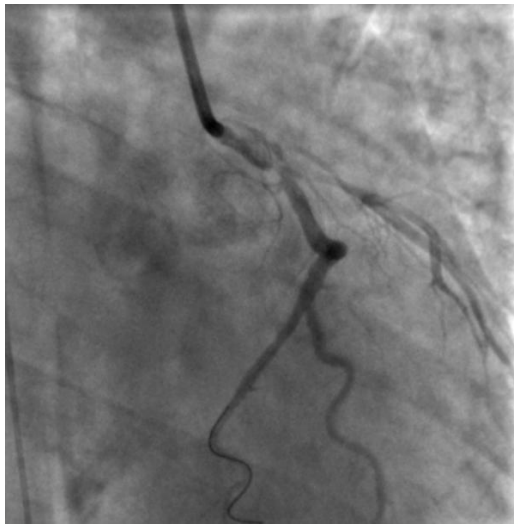
- PCI
- CABG

Angioplasty and stenting with a drug eluting stent (DES) was performed.

- Guide catheter: Q 3.5 SH 7Fr
- Guidewire: Runthrough (the distal Cx)

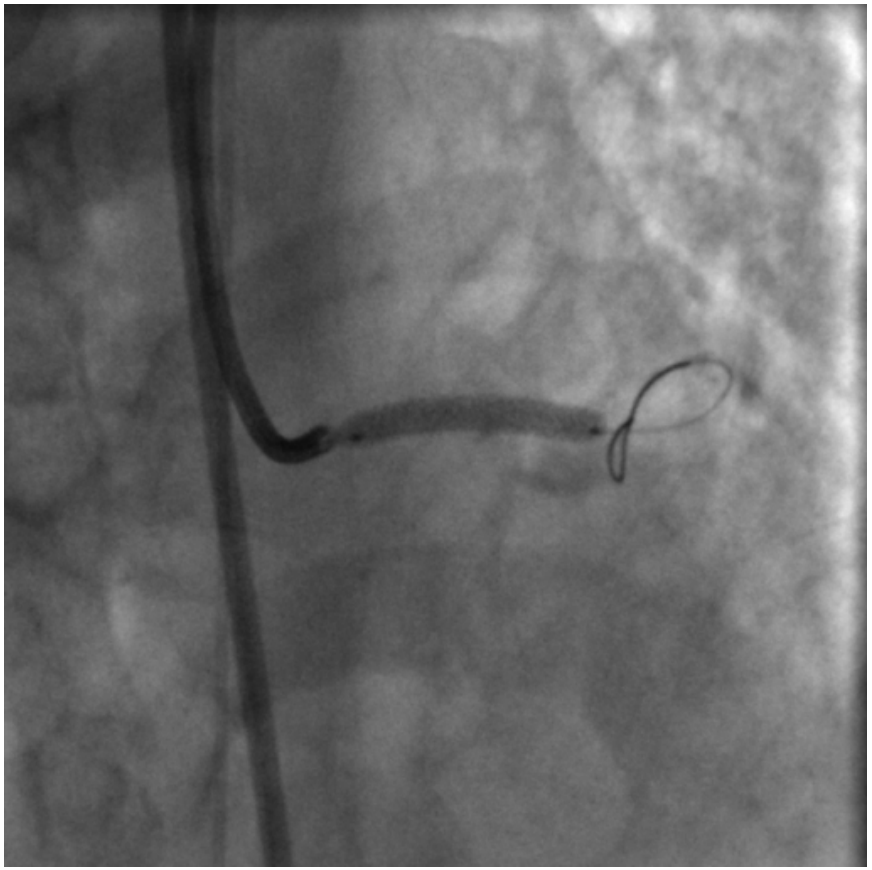


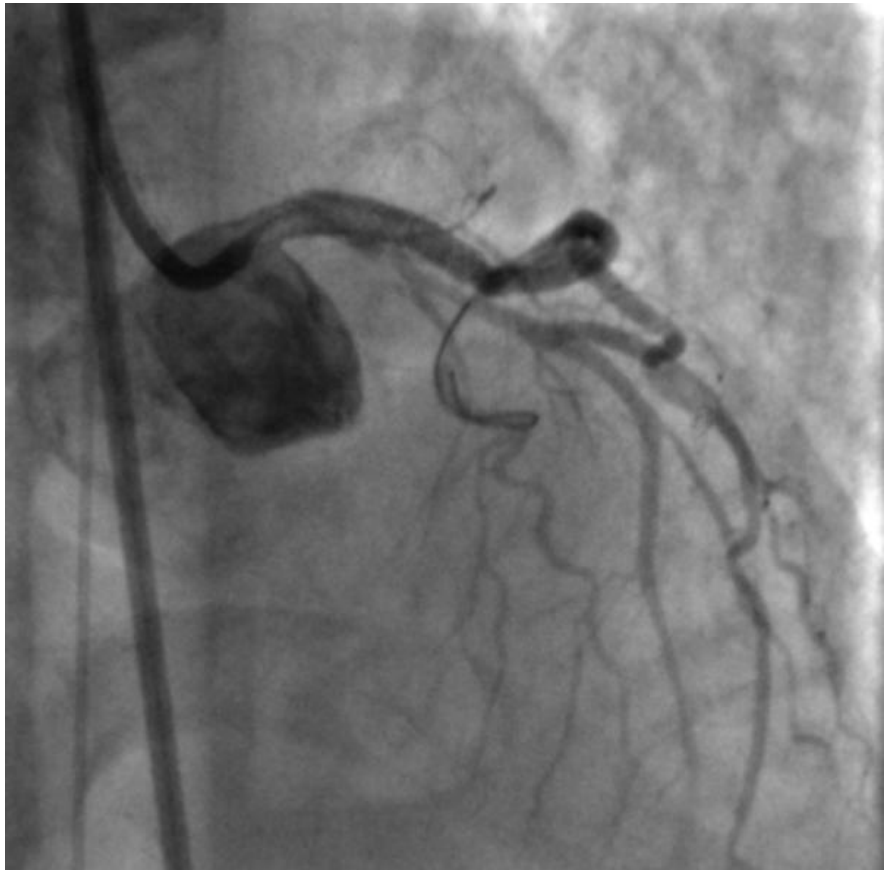




It was extremely difficult to place another guide wire to the distal LAD (despite multiple attempts and various J) and because of the probability of further extension of the dissection, **we decided to proceed with direct stenting of the left main.**

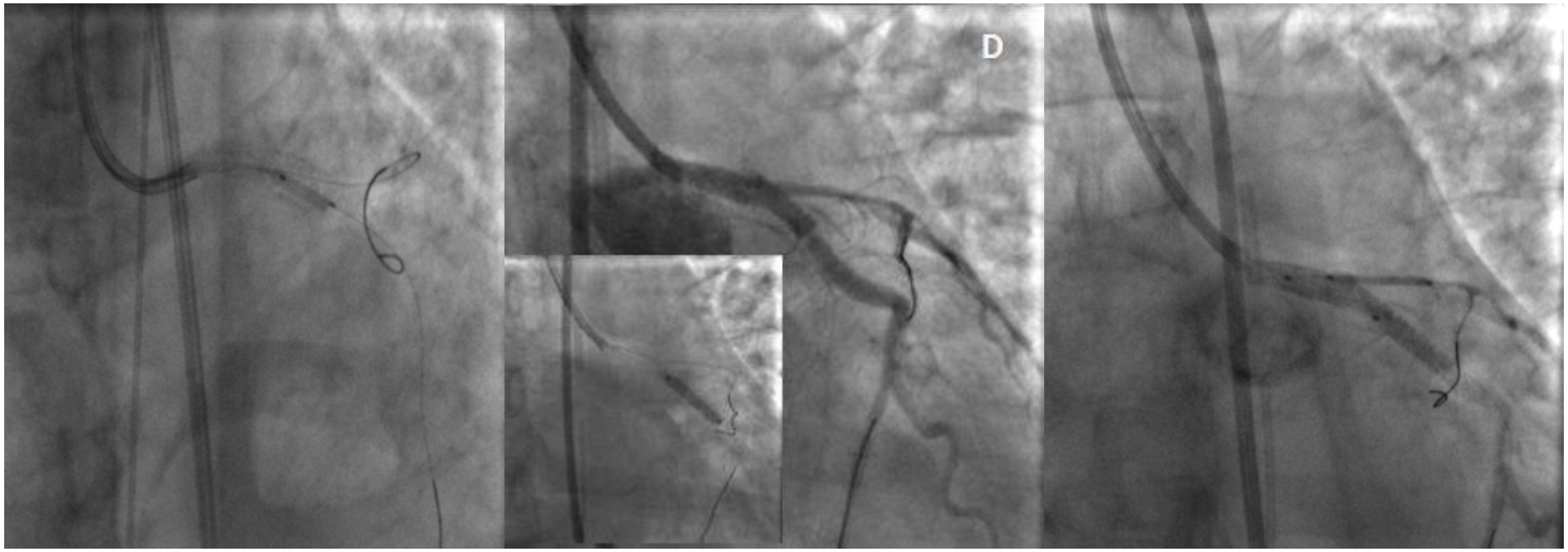
- A 3.0x24mm Taxus Element stent was deployed at 14 atms into the left main and proximal Cx





Due to the proximal sealing of the dissection, there was flow improvement in the LAD

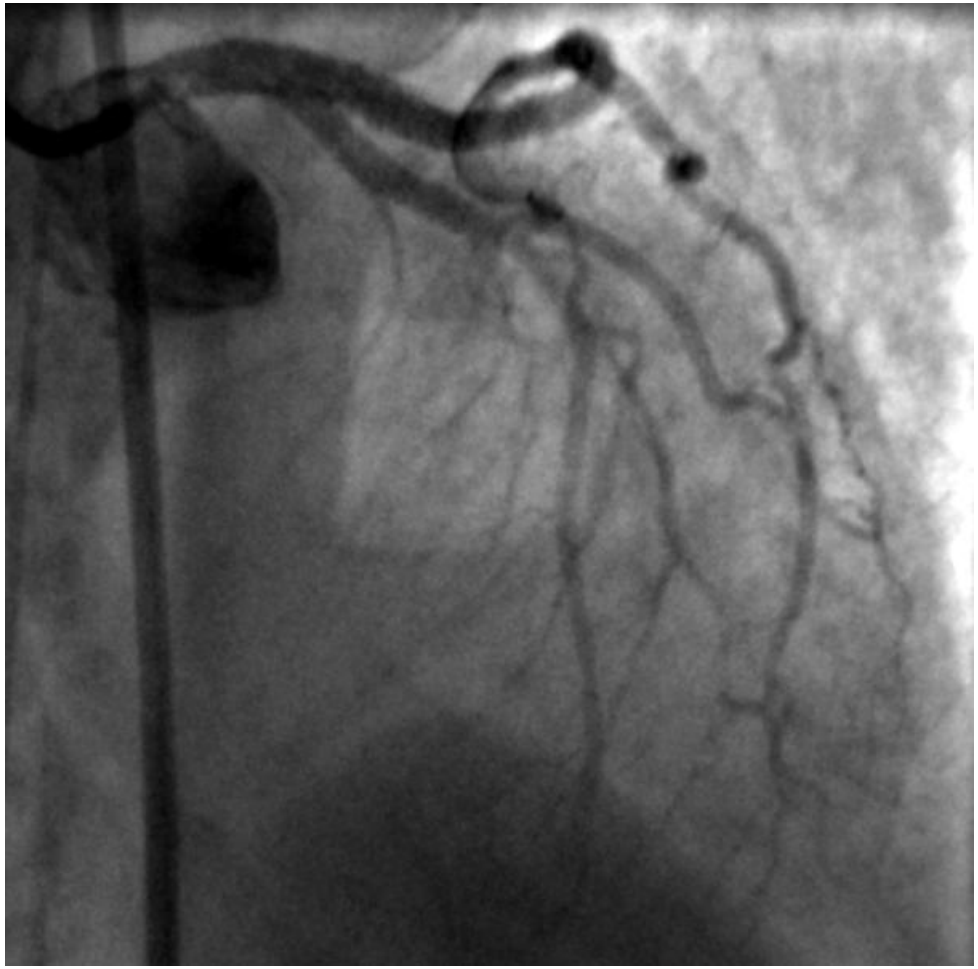
- An Asahi Pro Water guide wire easily crossed the struts of the stent and was placed to the distal LAD, followed by inflations of a Sapphire a 2.5x15mm balloons at the ostium and proximal of the LAD



Taxus Element 3.0X16mm was deployed, due to residual stenosis distal to the implanted stent of the Cx, overlapping it.

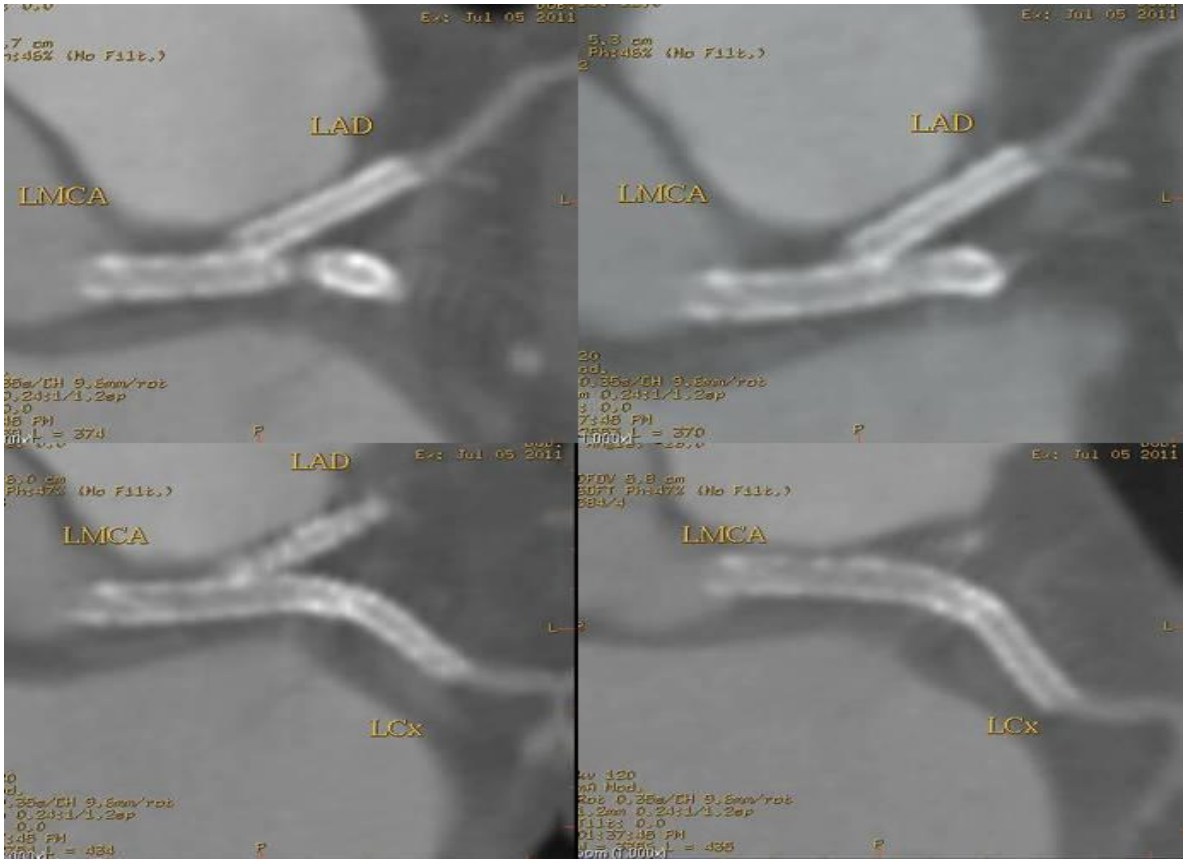
Taxus Element 3.0X16mm stent, into the LAD, with **reverse mini crush technique**

FINAL RESULT



No residual dissection and TIMI 3 flow in to the LAD and Cx

Echocardiography at 1 month : a nondilated left ventricle with anteroseptum and apex hypokinesia. Ejection fraction was 40% with a moderate mitral regurgitation.



The patient remained asymptomatic at **3 months follow up** and a **MSCT coronary angiography** showed the absence of re-stenosis in the segments treated with stents, followed by an improvement of left ventricular systolic function

- Spontaneous coronary artery dissection (SCAD) is an unusual but increasingly recognised cause of acute coronary syndromes and sudden cardiac death.

- The overall incidence of SCAD in angiographic series ranges from 0.07% to 1.1%. Two thirds of patients are women mostly presenting during pregnancy or in the peripartum period.

- Independent of gender, LAD is affected in 75% of cases and RCA in 20% of cases. Primary dissection of the left main coronary artery accounts for fewer than 1% of all primary coronary dissections

There are no established guidelines available to guide treatment of patients with SCAD. Treatment options include medical therapy and revascularization with either CABG or PCI.

The decision should be individualised. Important factors to consider include:

- location and extent of dissection,
- distal coronary blood flow,
- resolution or recurrence of symptoms following the initial event,
- hemodynamic stability and
- amount of myocardium at risk.

In our case, given

- the rapidly progressive nature of the dissection presenting as acute myocardial infarction,

- the delay from transfer to our instititution,

- the unstable and critical hemodynamics at the time of procedure and the severity of LV dysfunction,

it was felt that percutaneous stenting of the left main coronary artery to seal the entry point of the dissection would be the most expeditious therapy.

- The interventionalist should be aware of the technical difficulties that may be encountered when dealing with such patients.
- It is essential to ensure that the guidewire is advancing in the true lumen. Passing the wire into the false lumen may occur more easily in these relatively non-fibrotic arteries.
- Predilation with balloons should be avoided because it may lead to expansion of the dissection; instead direct stent implantation should be performed.
- A potential complication of stenting includes the extrusion of intramural thrombus up- or downstream of the stent, due to lack of fibrous tissue in these non-atherosclerotic vessels.

PCI is a potential option, for the treatment of selected cases with spontaneous left main coronary artery dissection, presenting with an acute coronary syndrome.