



A nightmare in the left main PCI – stent fracture

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Gender: Male

Age: 61 years

Height: 186 cm

Weight: 93 kg

BMI: 26,9 kg/m²

Risk factors: smoking,
dyslipidaemia

Lifestyle: Active life

Psychological status:

Normal cognitive function

Dyspnea NYHA III

Angina CCS II class in the last two months

ECG:

sinus rhythm, PR: 0,19 sec, no Q waves, no ST/T abnormality

TTE:

LVEF 60%, mild apical hypokinesia

Positive Thallium scan:

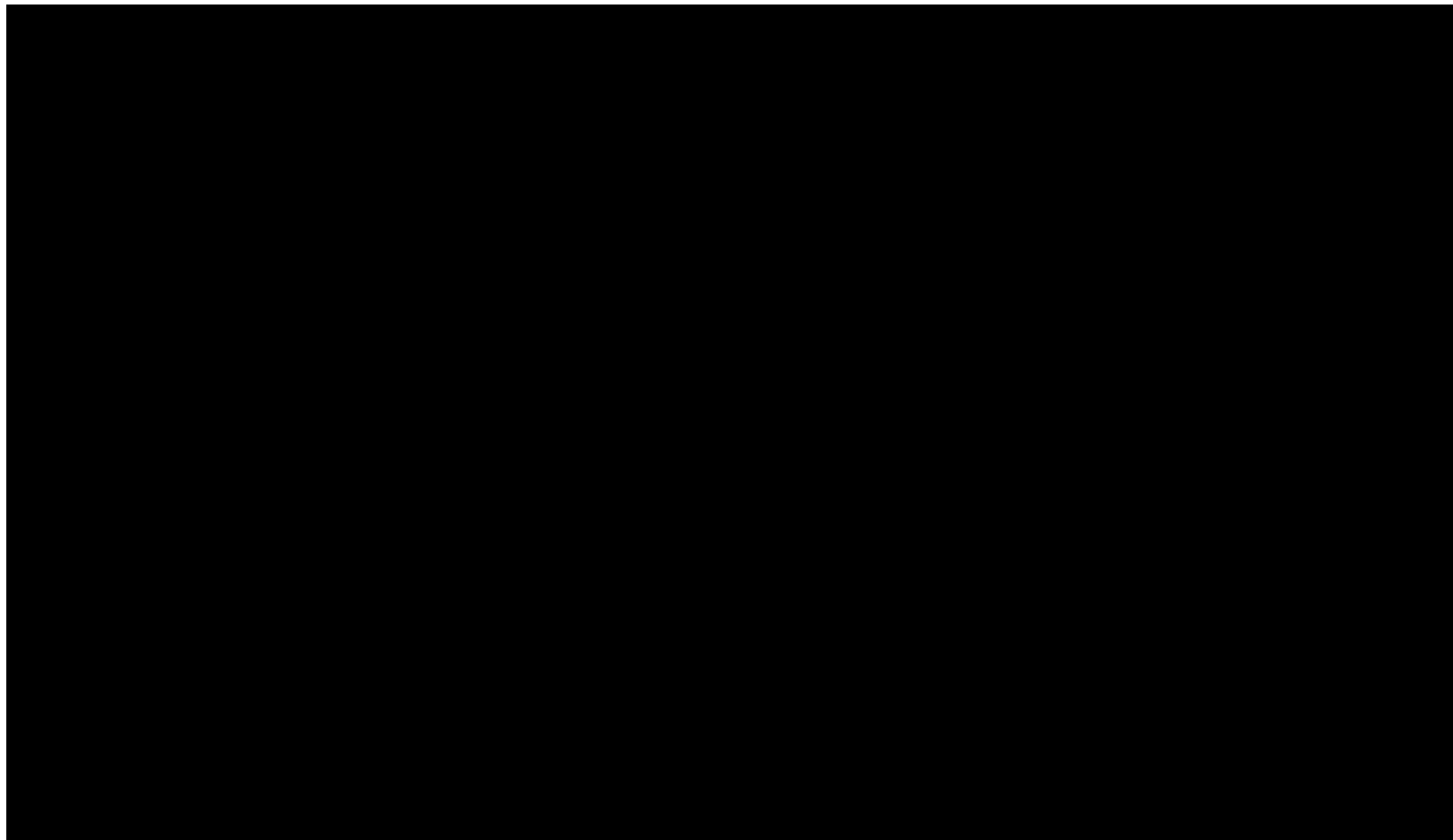
Decrease of EF% by 10% during the effort, reversible

ischemia in anterior wall and apex

Hb	152,4 g/dl
Creatinine	75 µmol/l
GFR	79 ml/min
Troponin I	22
CRP	1,9 mg/L
HbA1c	5,3 %

Laboratory findings

Baseline coronary angiogram



Subocclusive lesion in the LAD ostium – angio Medina 0,1,0; borderline lesion in the distal CX- Medina1,1,0; Mid LAD subocclusive, and than borderline lesion, subocclusive lesion in the distal LAD; RCA difusely, non significantly ill.

Syntax Score I: 20 (low):

Syntax Score II:

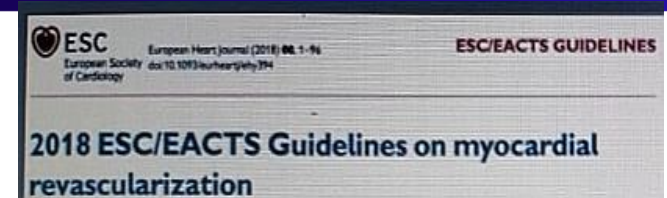
PCI: 26,0; 4 yr mortality 4,9%;

CABG : 22,8; 4 yr mortality 3,8%

-distal LAD difusely ill-not suitable
for graft



PCI of the ostium and mid LAD



Extent of CAD (anatomical and/or functional)		Class ^a	Level ^b
For prognosis	Left main disease with stenosis >50%. ^{c 68-71}	I	A
	Proximal LAD stenosis >50%. ^{c 62,68,70,72}	I	A
	Two- or three-vessel disease with stenosis >50% with impaired LV function (LVEF ≤35%). ^{c 61,62,68,70,73-83}	I	A
	Large area of ischaemia detected by functional testing (>10% LV) or abnormal invasive FFR. ^{d 24,59,84-90}	I	B
	Single remaining patent coronary artery with stenosis >50%. ^c	I	C
For symptoms	Haemodynamically significant coronary stenosis ^e in the presence of limiting angina or angina equivalent, with insufficient response to optimized medical therapy. ^{e 24,63,91-97}	I	A

FAVOURS PCI

Clinical characteristics

Presence of severe co-morbidity (not adequately reflected by scores)

Advanced age/frailty/reduced life expectancy

Restricted mobility and conditions that affect the rehabilitation process

Anatomical and technical aspects

MVD with SYNTAX score 0-22

Anatomy likely resulting in incomplete revascularization with CABG due to poor quality or missing conduits

Severe chest deformation or scoliosis

Sequelae of chest radiation

Porcelain aorta^a

IVUS should be considered to optimize treatment of unprotected left main lesions. ³⁵	IIa	B
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2 wires technique – LAD and CX

Provisional strategy – mid LAD- DES, ostium LAD – DES with the stent in LM
(not having IVUS not knowing if the dist LM is ill)- as far as the shortest NC
balloon

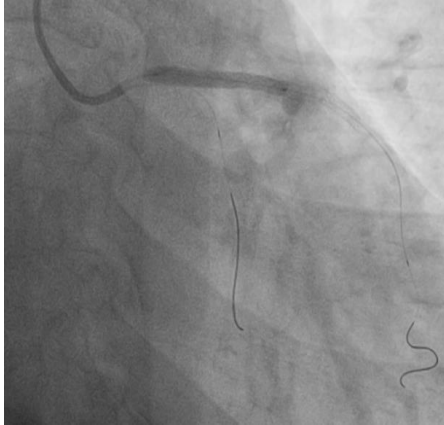
POT

Kissing balloons

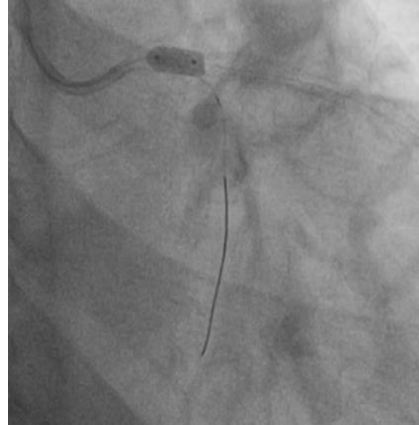
Final POT

Angiographic assesment: a) side – POT if mild carina shift

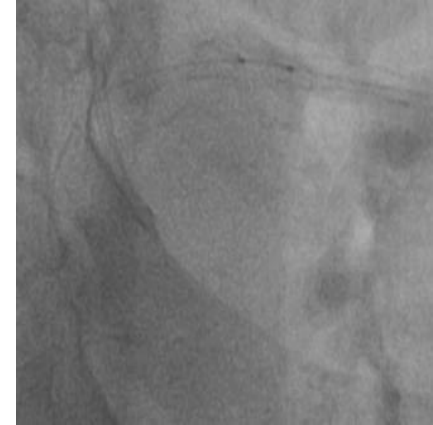
b) DES in ostium CX (TAP) if needed



After PCI mid LAD- PCI LM /LAD
3,5x30 mm

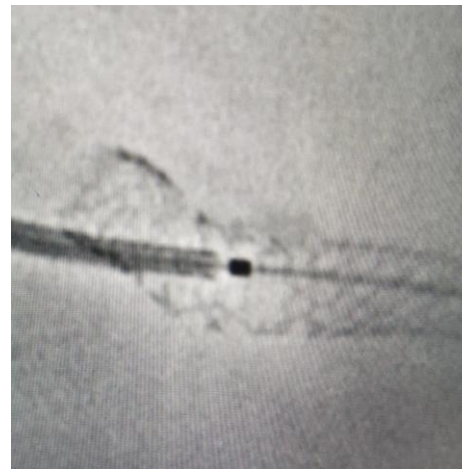


POT with NC 4,0x8 mm



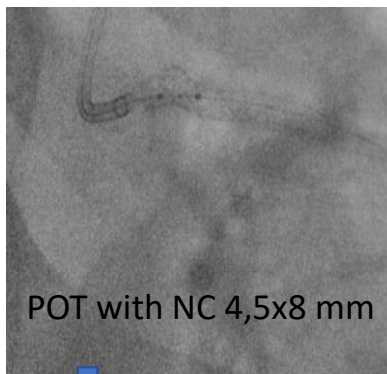
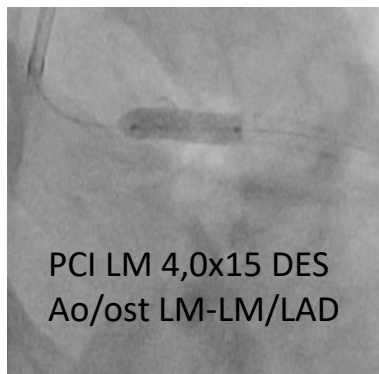
After POT difficult to pull back the NC balloon, trying
to go further in the LAD – not possible

Stent boost



What to do next??

Stent fracture in the dist LM – hardly able to pull the balloon and the wire from the CX out

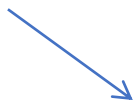


Then..
Another complication

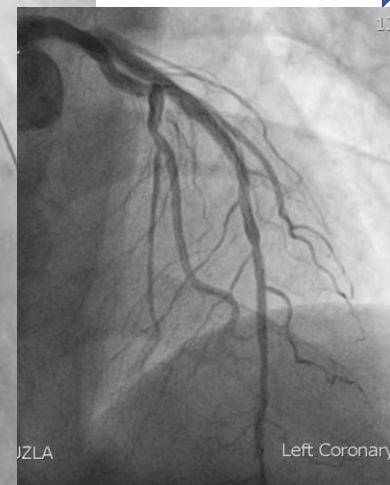
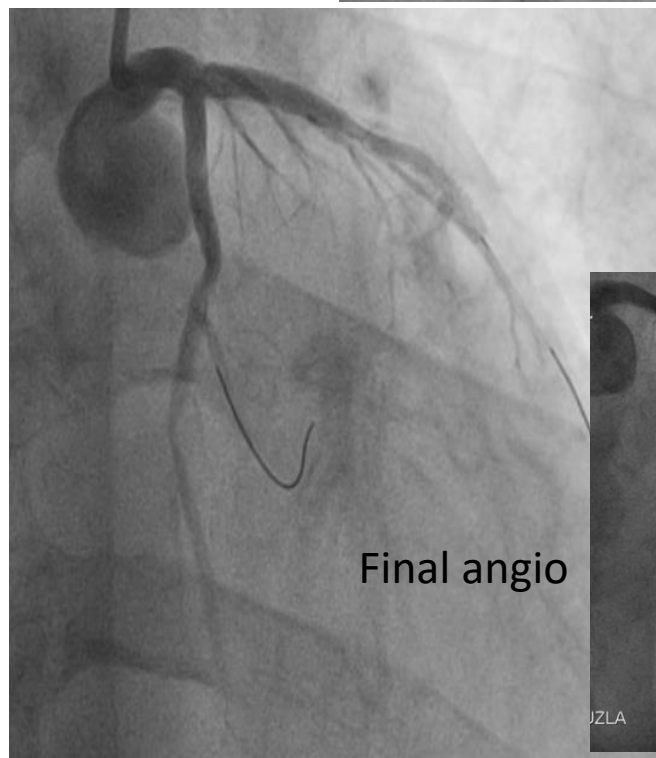
New guidewire in CX; dilation of the
CX ostium with NC 3,0x15



Two step kissing

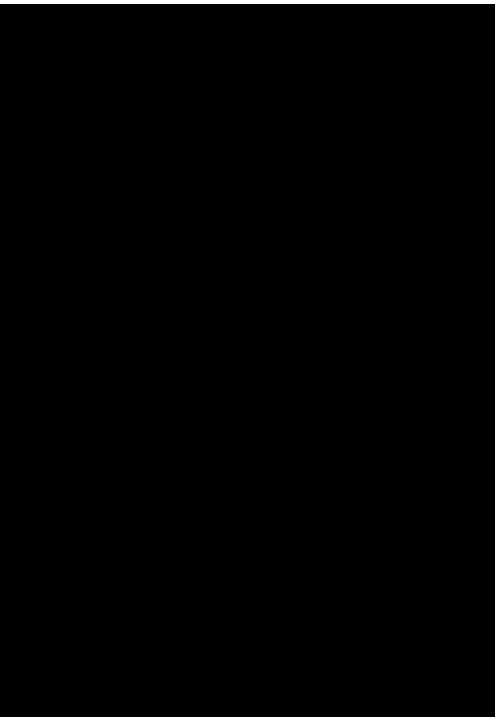


Together NC 3,0 x15 in LM/ CX;
NC 4,0 x12 in LM/LAD



Patient having chest pain, haemodynamically unstable- BP 70/50 mm Hg, sinus bradycardia 40/min, pale, diaphoresis

Angio : No-reflow in mid/dist LAD where before was lesion 50% - probably dissection from multiple distal wire manipulation



No-reflow



After tirofiban , nitro
and verapamil i.c,
and still no-reflow;
finally PCI mid/dist LAD
2,75x18 mm DES

Final angio



Angio after 1 year

Why and how? Take home messages

- Stent fracture is a serious intraprocedural complication associated with the stent thrombosis, restenosis, ischaemic events and target lesion revascularisation.
- The most serious is when it happens in the left main and can cause sudden cardiac death from stent thrombosis.
- Often missed, because it is not always seen on classic angio. Enhance stent visualisation can provide a good diagnosis of the fractured stent, especially in a cath lab without imaging.
- Why did it happen in our case? Mostly because of the vessel and stent geometry – wide angle, which is the most common cause. DES and longer stents are most vulnerable to fracture. Postdilatation also had a role in fracturing the stent struts.
- Multiple distal wire manipulation can cause dissection, perforation and lead to a cardiogenic shock and death.
- Always check the distal tip on the wire, even on the soft ones. Always check for stent patency after deployment.