THE USE Of FFR TO ASSESS AN ANGIOGRAPHICALLY SIGNIFICANT LESION – A JUSTIFICATION TO A COMPLEX PROCEDURE

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Patient

- 66 year old ex smoker female with hypertension, hypercholesterolemia
- Anterior NSTEMI: acute chest pain and shortness of breath, T wave inversion in the anterior leads and increase peak troponine
- Refered for coronary angiogram.

Coronary angiogram

Right radial approach (6F)

RAO cranial

RAO caudal

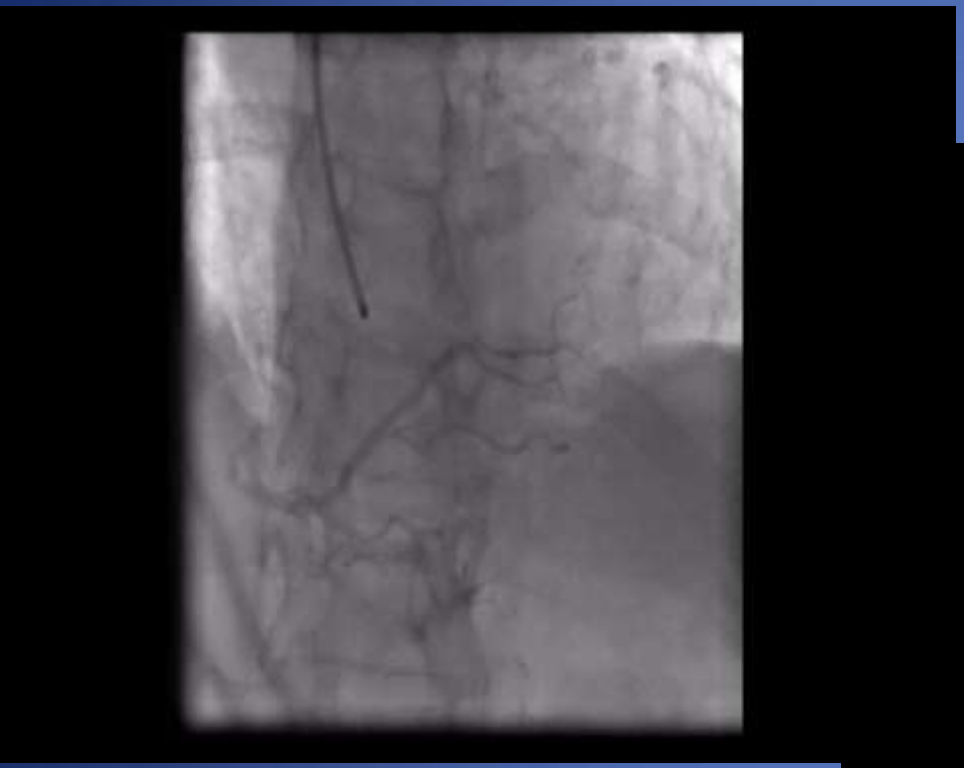
Left anterior descending artery:
diffusely deseased and calcifid with significant lesion in its distal portion

Left circonflex artery:
calcified with no significant lesion

Coronary angiogram

Right radial approach (6F)

AP cranial



RAO

Dominant right coronary artery: no significant lesion

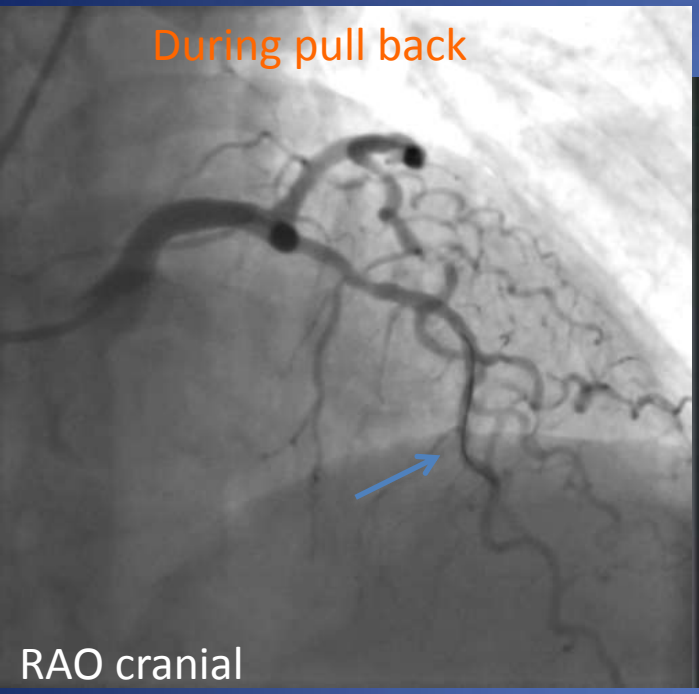
Left ventricle: Ejection fraction of 50%.
Apical Akinesia

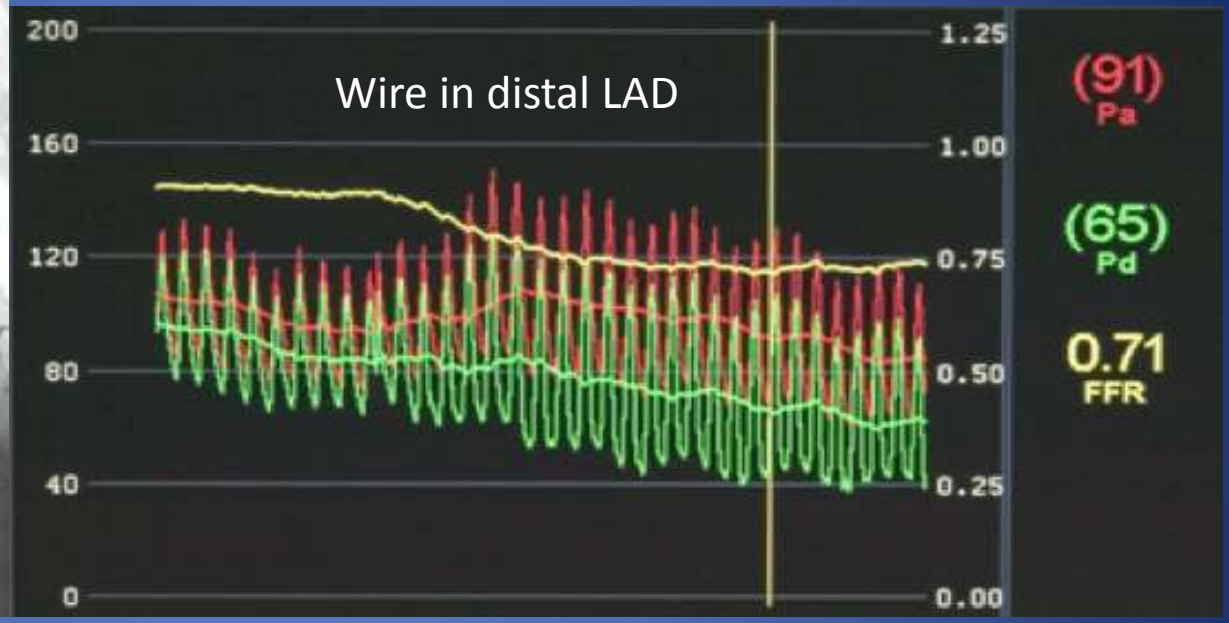
What do we do?

- Suspect TAKOTSUBO and treat medically?
- Suspect LAD lesion to be the culprit lesion?
  - Angioplasty of the culprit lesion
  - Treat medically (small calcified artery)
  - Test the potential culprit lesion with FFR

Left anterior descending artery: FFR

pull back on adenosine infusion

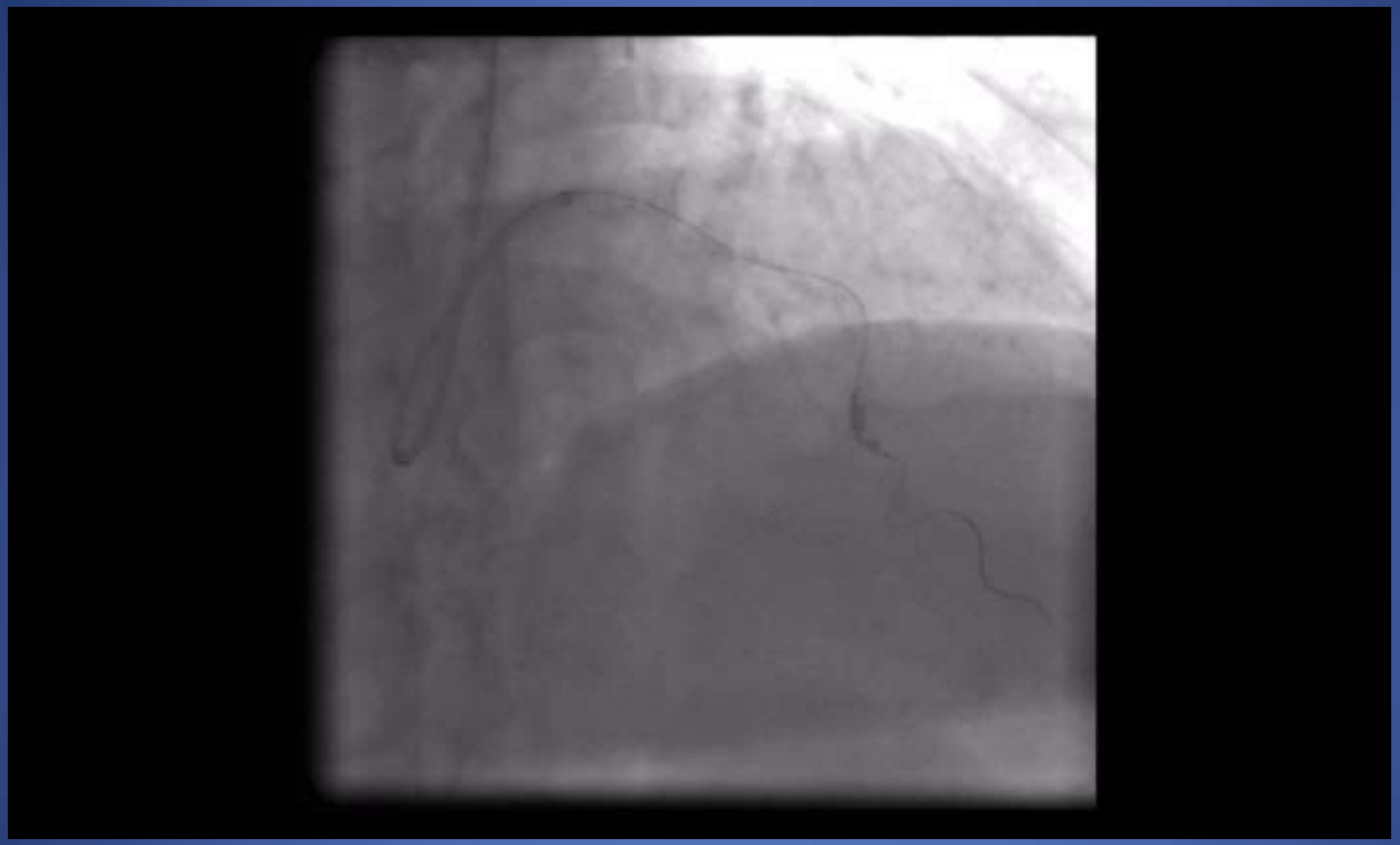




FFR significant for ischaemia. Pull back shows pressure jump proximal to distal left anterior descending lesion .

Mid left anterior descending angioplasty

2.0 x 15mm balloon on FFR wire

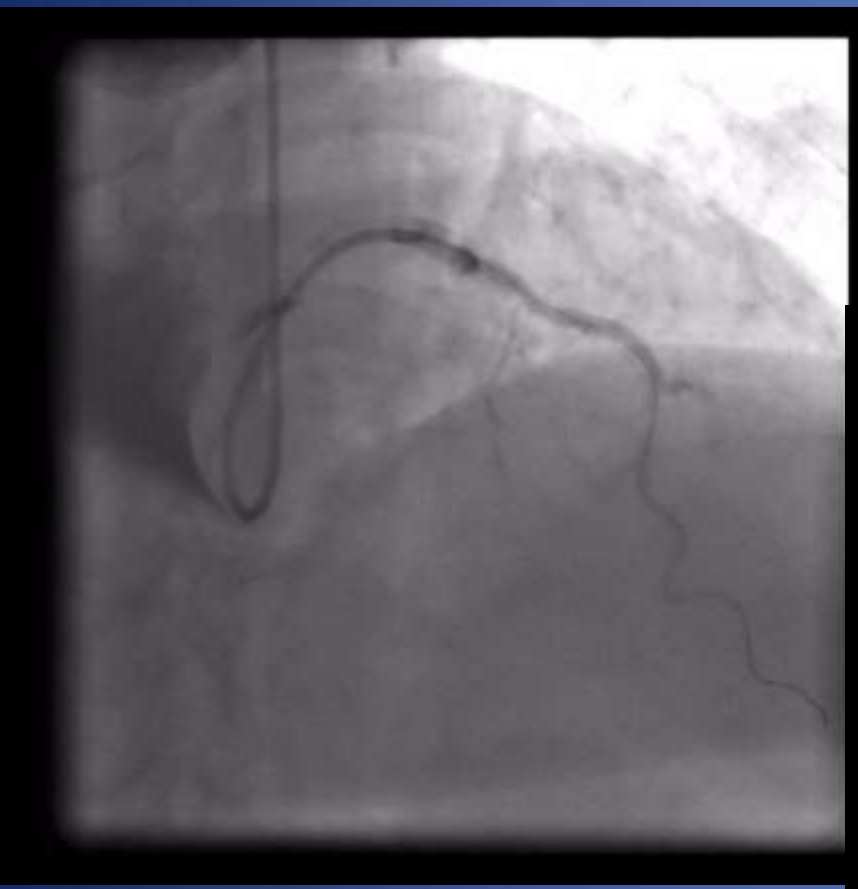


- Ballon advancement difficult warranting deep throat catheter engagement in left main and proximal LAD
- Several long balloon inflations

Result

Dissection of proximal left anterior descending artery retrograde into left main trunk, aortic cusp and proximal circonflex artery due to catheter tip.

Good result at PCI site



RAO Cranial

LAO Caudal

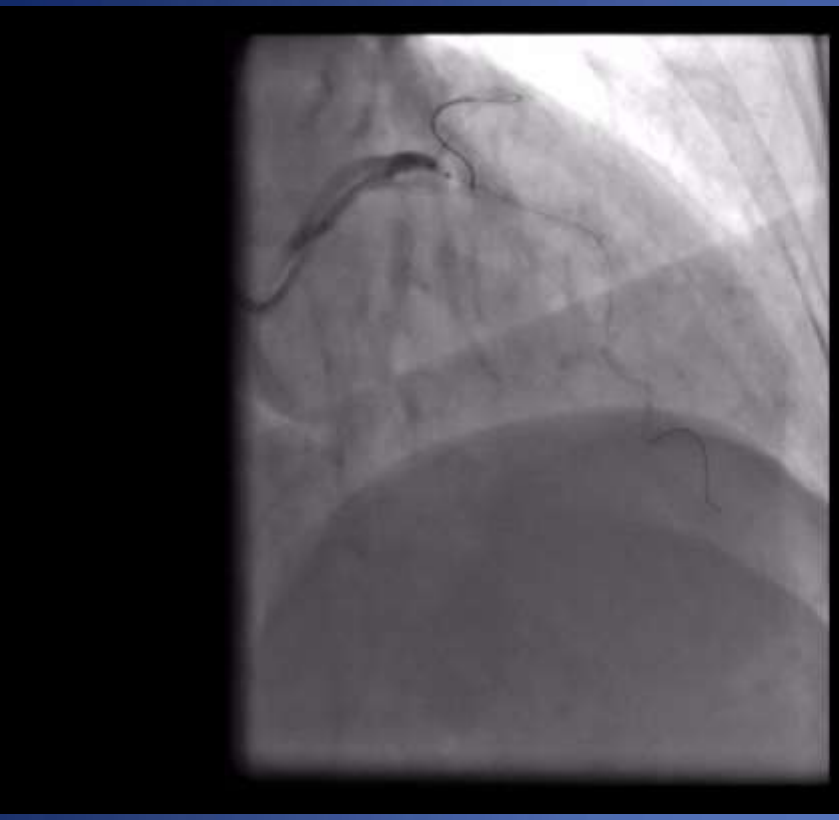
Decision: What do we do?

- Continue the procedure?
- Call the surgeons?

Patient with chest pain and ST elevation in anterior leads

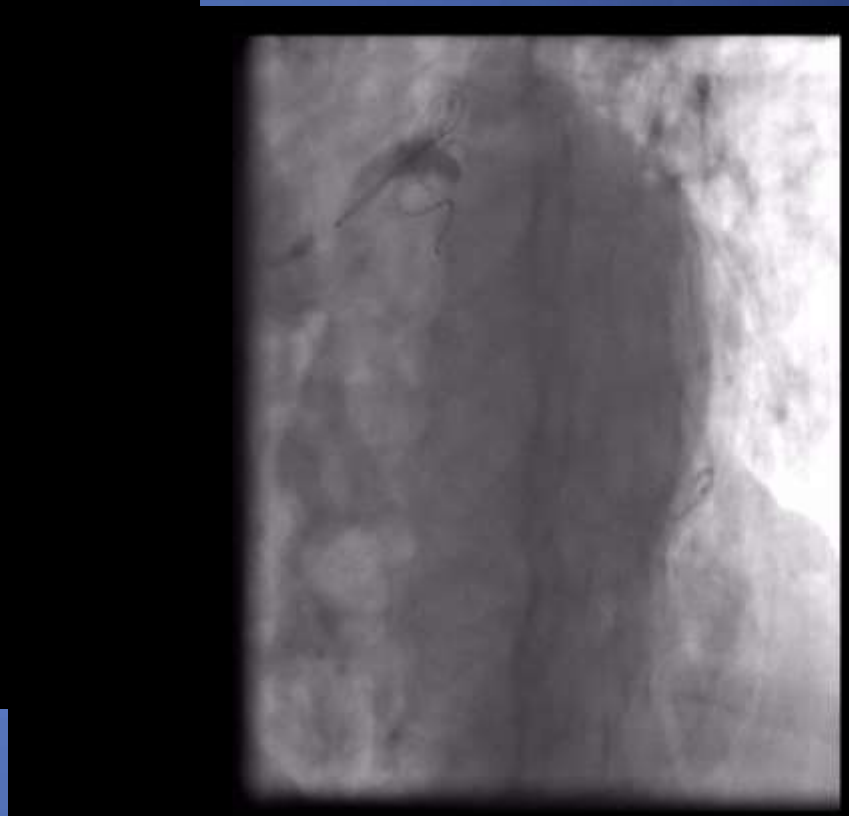
BUT haemodynamically and rhythmically stable

Continue with Interventional Procedure



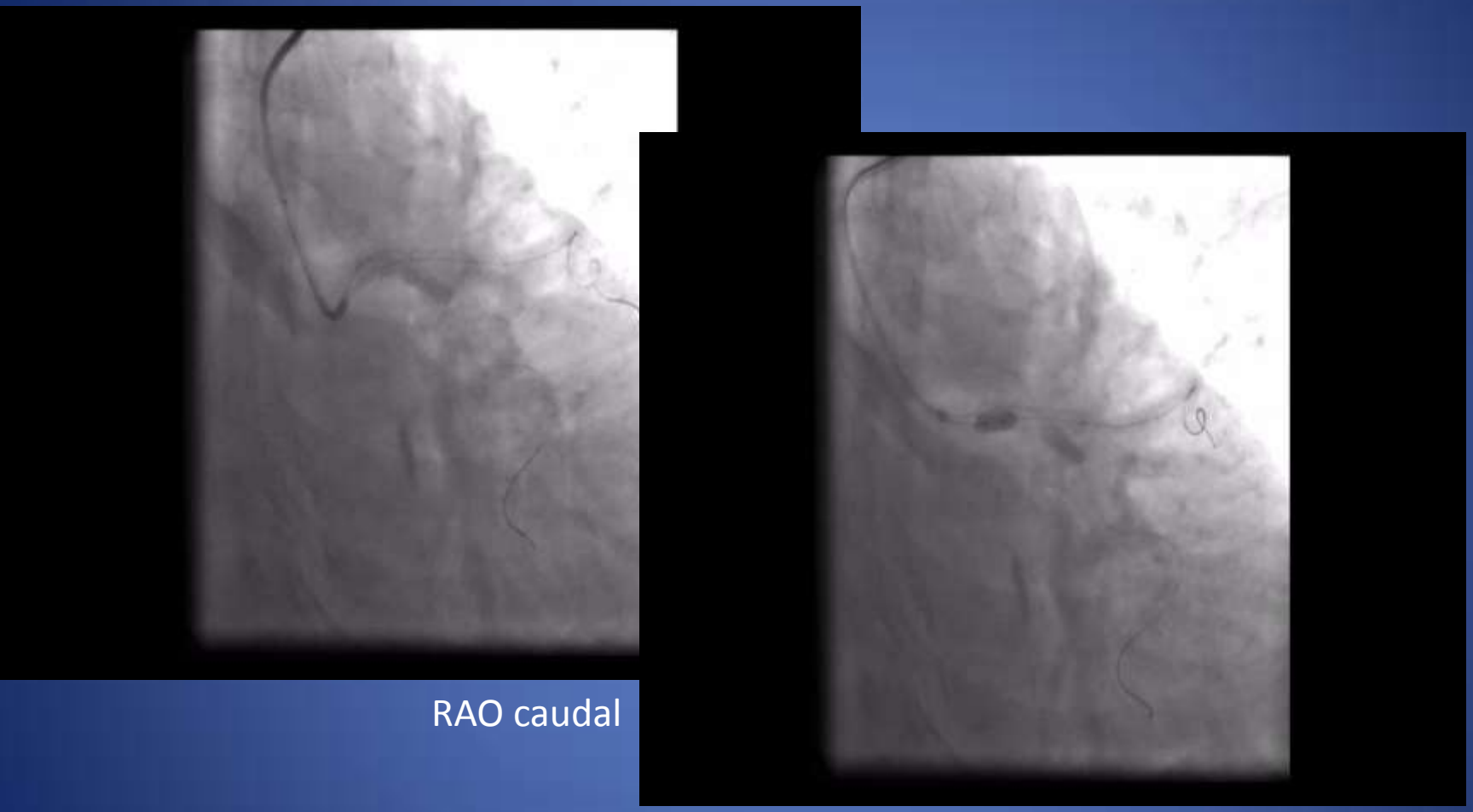
RAO cranial

LAO caudal



Immediate wiring of the circonflex artery, stenting of the left anterior descending artery into the left main to its ostium with a DES 3.5 x 28mm. Kissing into the circonflex artery. Inflation in the left main trunk ostium with non compliant 4.5 x 8mm balloon.

Continue with Interventional Procedure

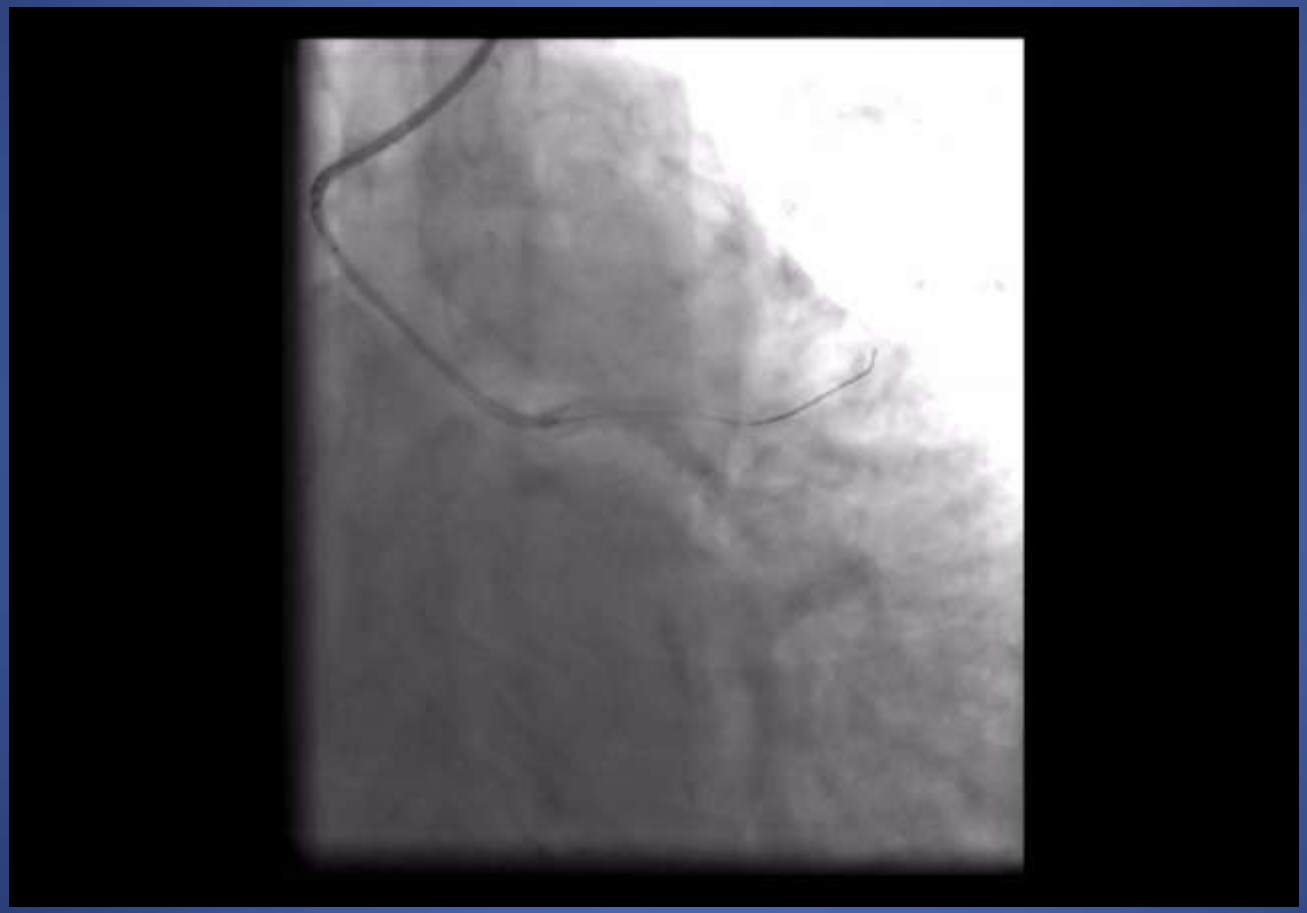


RAO caudal

But persistance of double contour contrast, including in aortic cusp.
Additional DES 4.0 x 9mm positionned at the left main ostium.

Final result

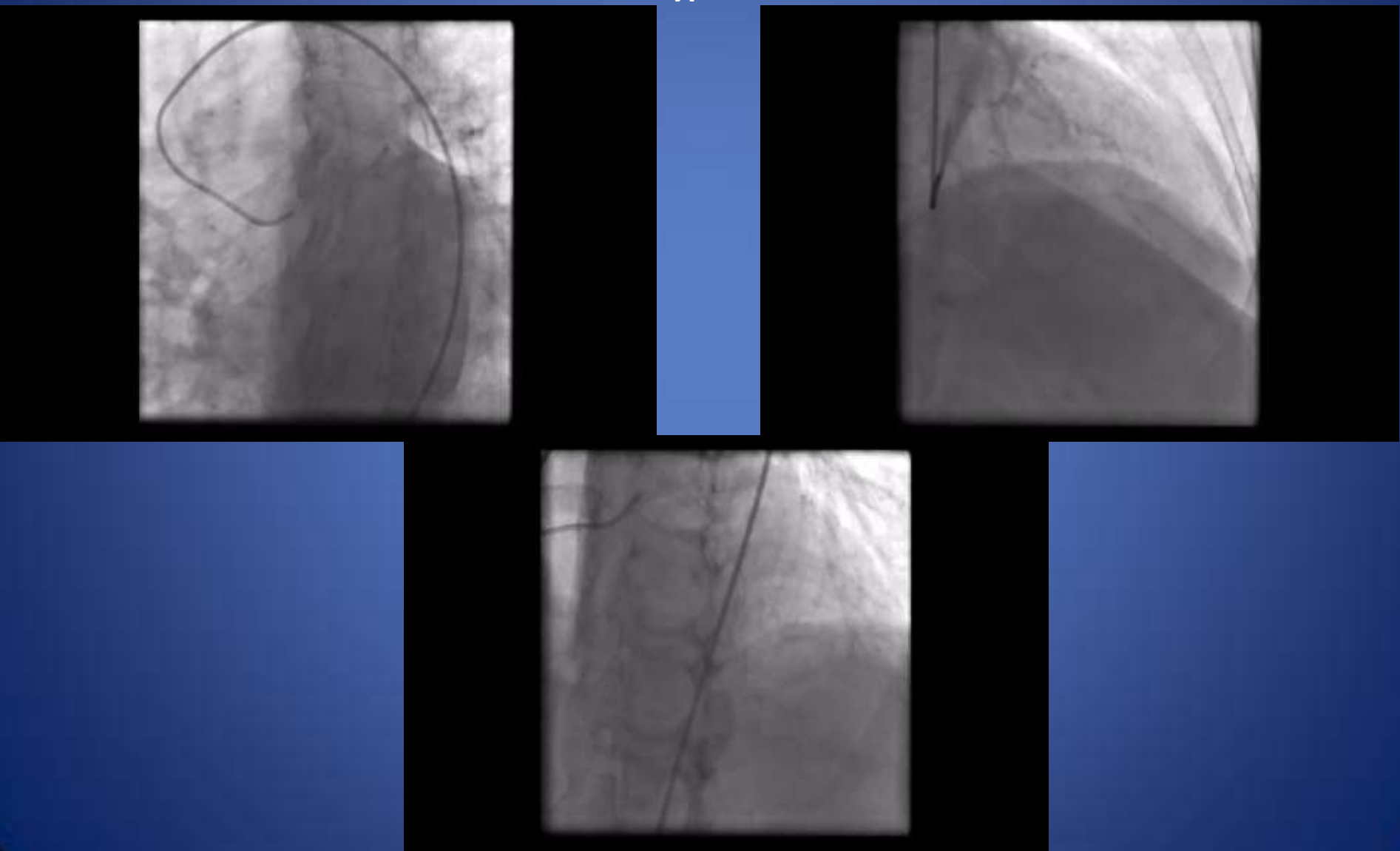
RAO caudal



Diapearance of all contrast extravasation. Decision to leave Left Circumflex Artery unstented as good TIMI3 flow and FFR = 0.86

15 MONTHS LATER

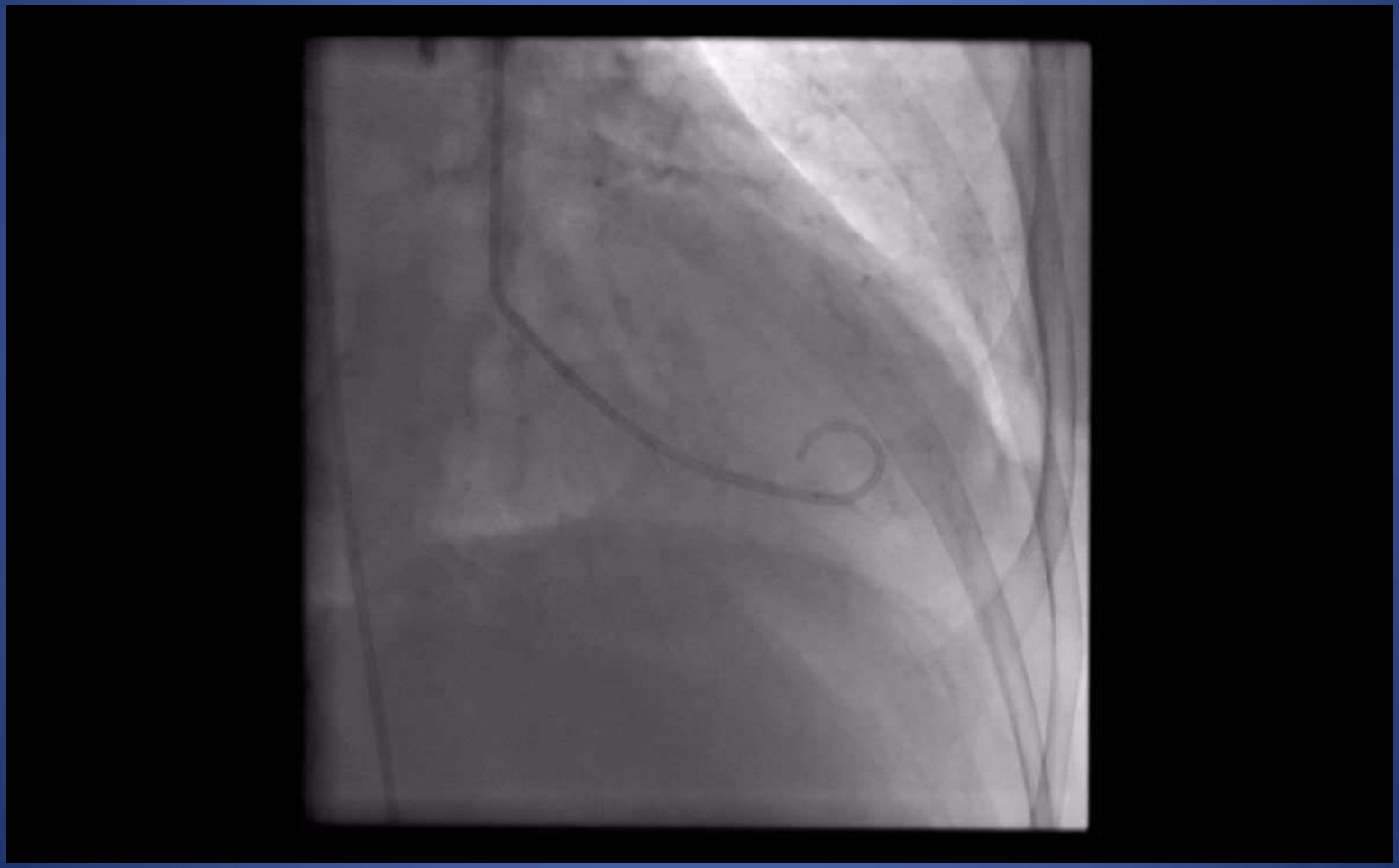
Patient presented with chest pain, small rise in Troponin and no ECG changes, in the context of hypertensive crisis



FFR in Distal LAD under Adenosine infusion

Negative FFR with no significant jump

And Left Ventriculography



Conclusion 1

- FFR was crucial to justify a complex procedure and achieve complete revascularisation.

Conclusion 2

- Was the true diagnosis:
  - Antero-apical NSTEMI treated by PCI?
  - TAKOTSUBO

Conclusion 2

Takotsubo		NSTEMI	
Pro:	- Menopaused woman	Pro:	- FFR
	- Large apical akinesia		- Long LAD
	- Full recovery		- High Troponine
Against:	- FFR		- Balloon inflation
	- No ST elevation		
	- Normal QTc		
	- High Troponine		

Based on IVUS findings, some have suggested that Takotsubo is related to stunning of the myocardium in relation to a disruption of a sclerotic plaque

Ibanez et al., Heart 2005;**91**:1 102-104