ASIA PRIMARY ANGIOPLASTY CONGRESS 2014

Doing our best to treat AMI

2nd & 3rd August 2014

Marina Mandarin, Singapore

Organized by:

Tan Tock Seng Hospital

A member of National Healthcare Group
Adding years of healthy life

Endorsed by:

AESCULAP ACADEMY

Singapore Cardiac Society

Tan Tock Seng HOSPITAL

STEMI with Large Thrombus

Paul Ong FRCP FESC
Head of Interventional Cardiology
Tan Tock Seng Hospital
National Healthcare Group, Singapore

APAC Asia Primary Angioplasty Congress 2014

Tan Tock Seng Hospital

A Community of Care

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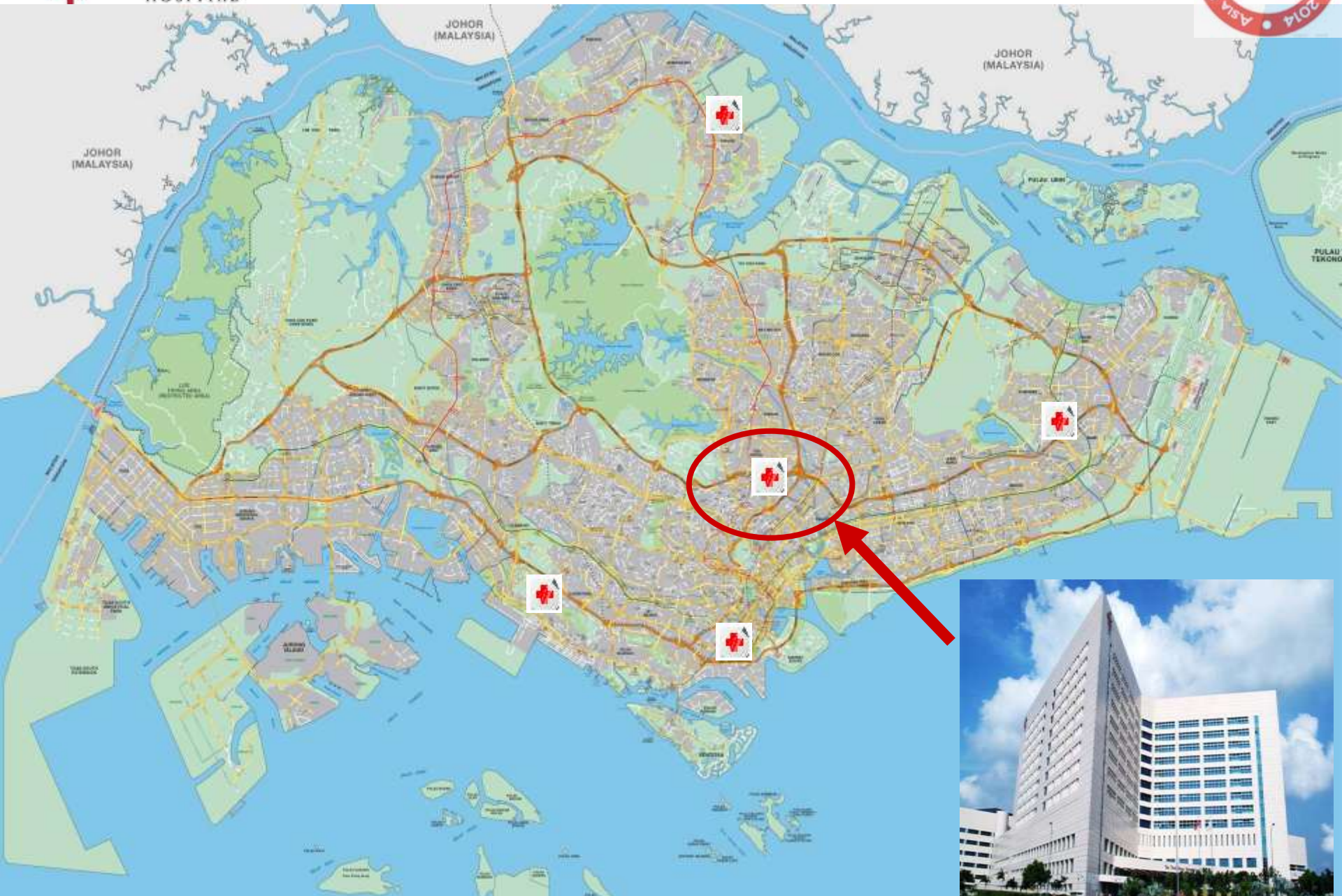

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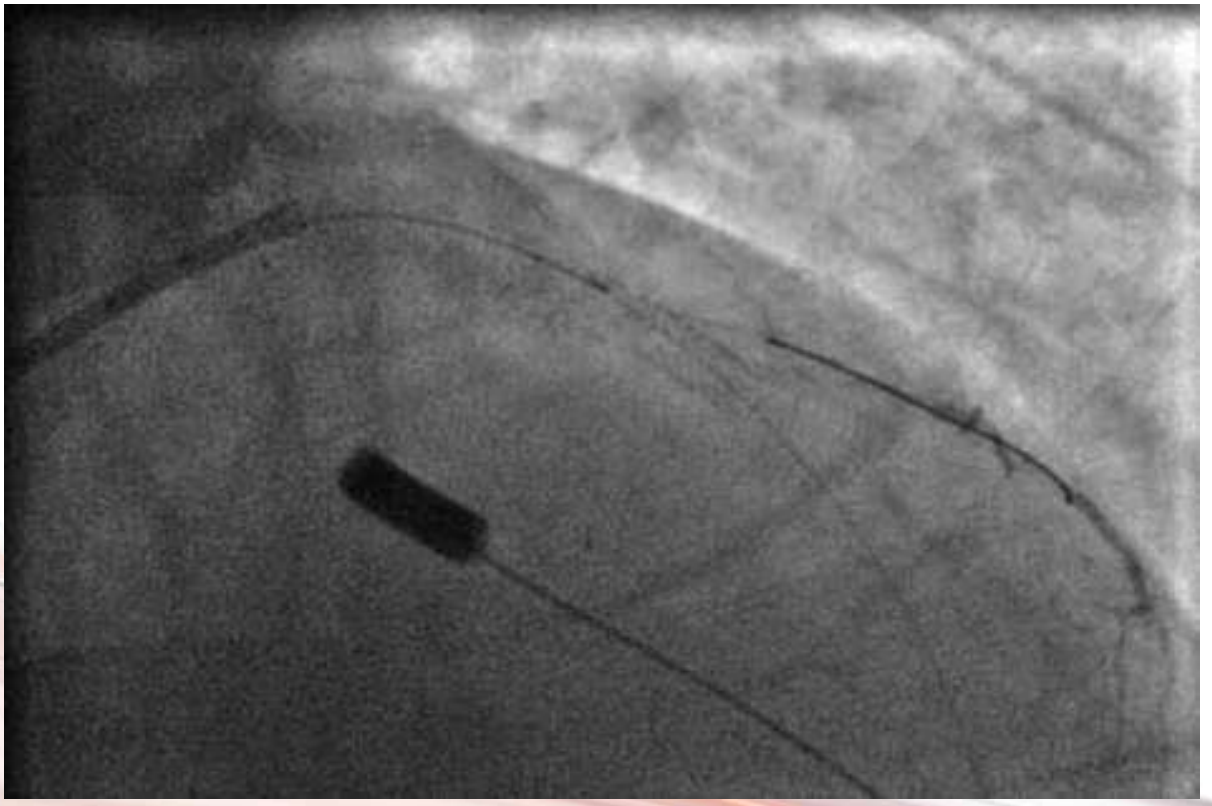
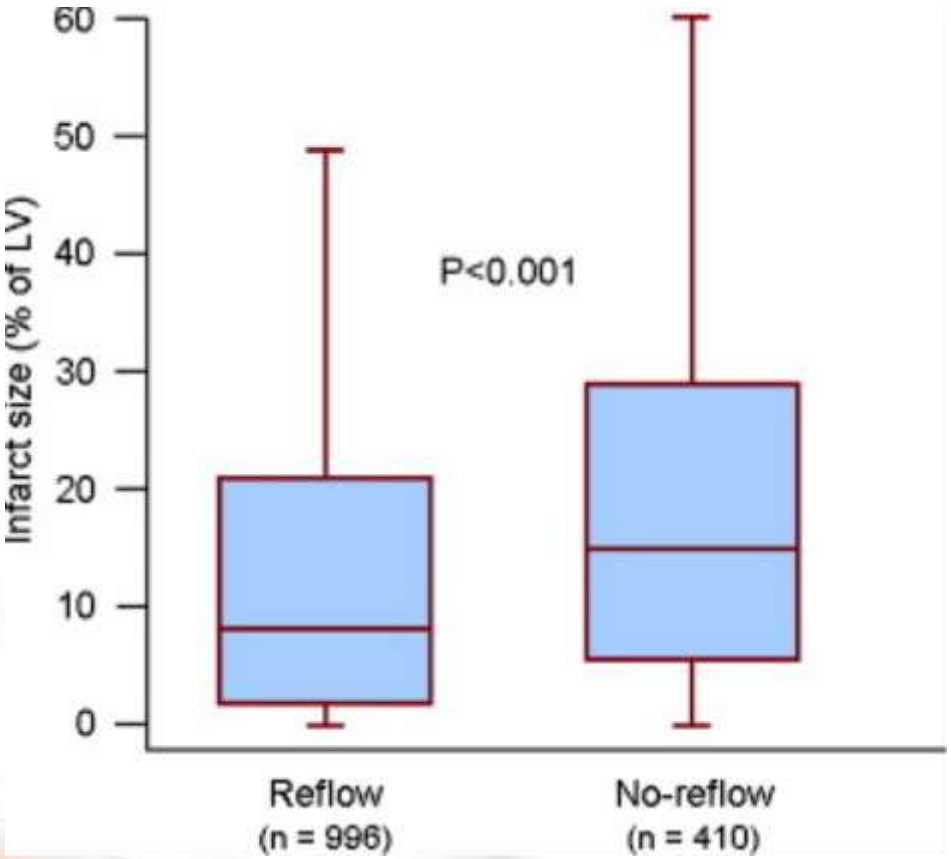
No Reflow



5-Year Prognostic Value of No-Reflow Phenomenon After PCI in Patients With Acute Myocardial Infarction



Infarct Size in the 7 to 14 Days Scintigraphy in Groups With Reflow and No-Reflow

J Am Coll Cardiol. 2010;55(21):2383-2389. doi:10.1016/j.jacc.2009.12.054

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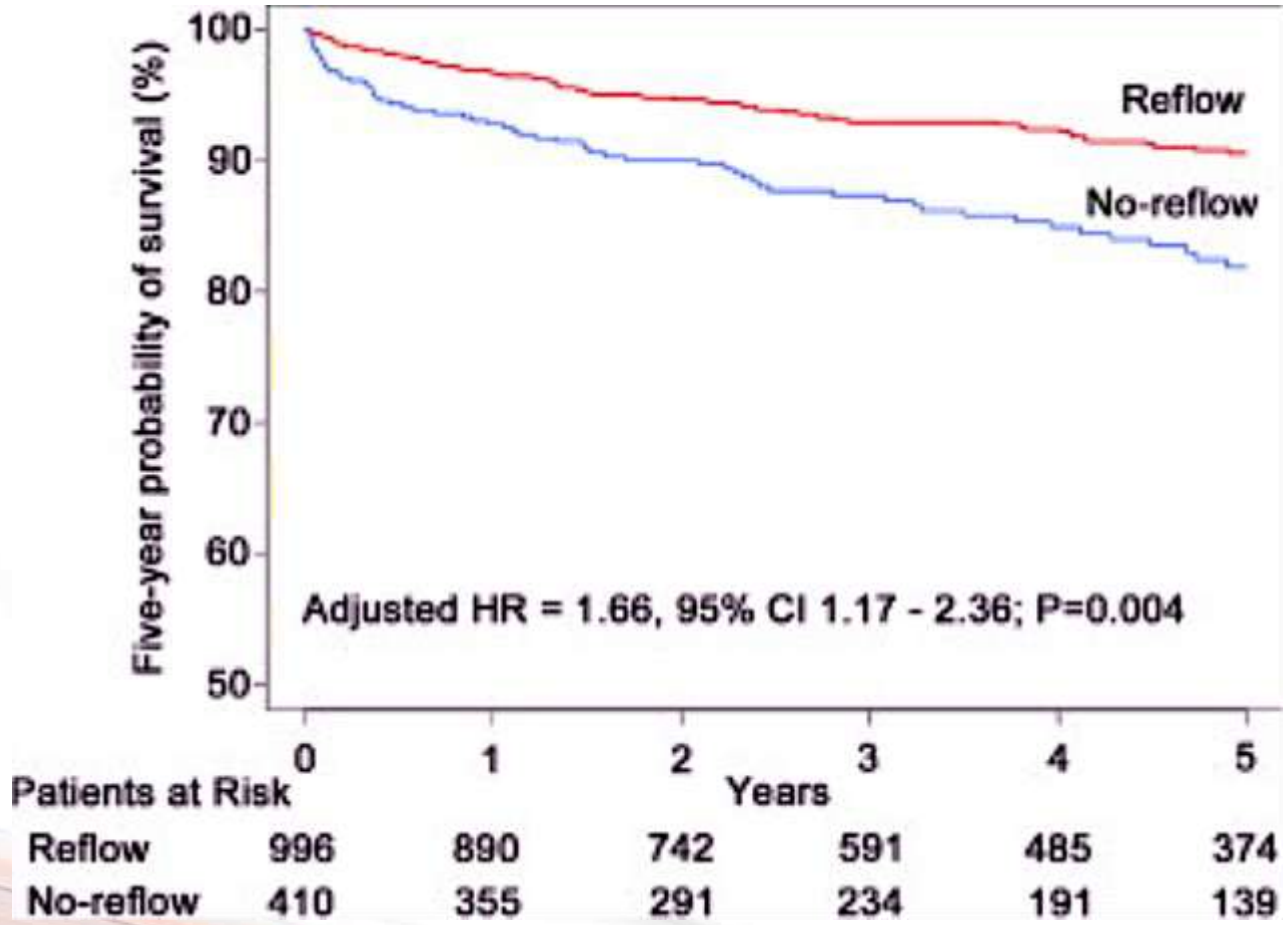

J Am Coll Cardiol. 2010;55(21):2383-2389. doi:10.1016/j.jacc.2009.12.054

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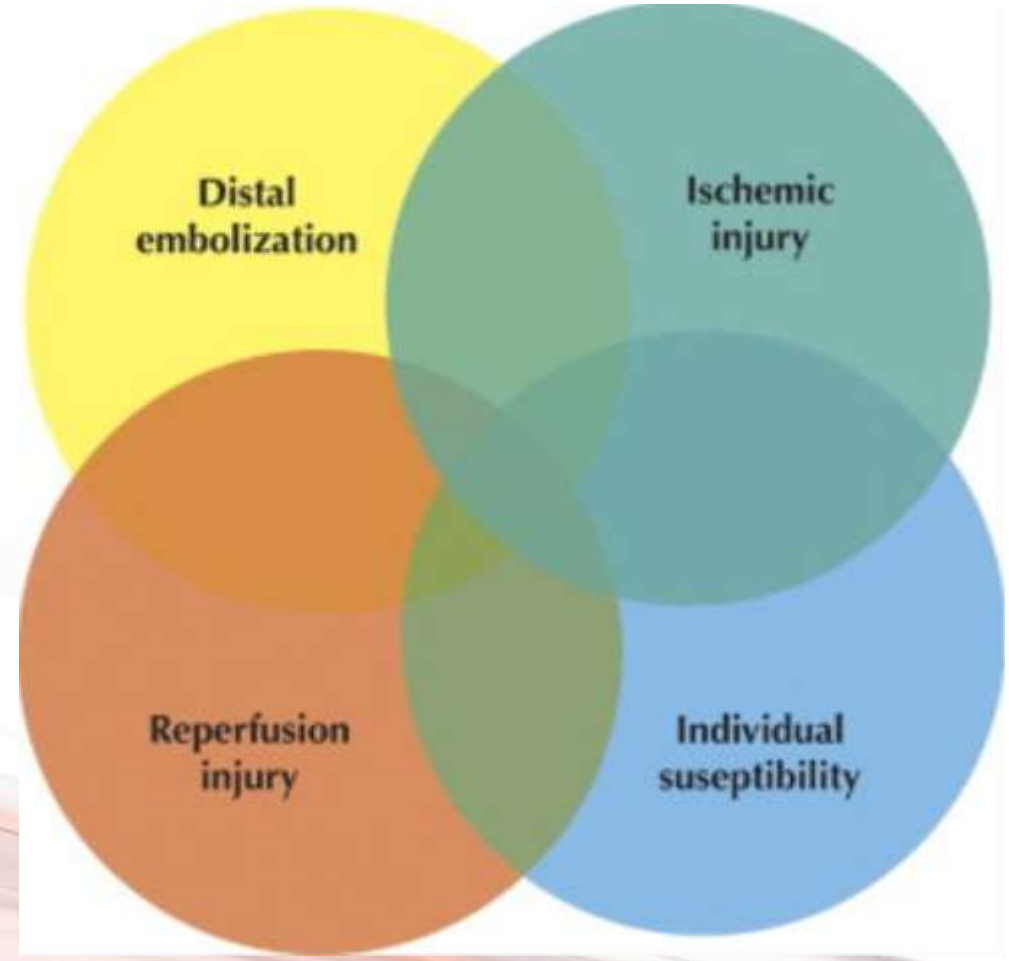

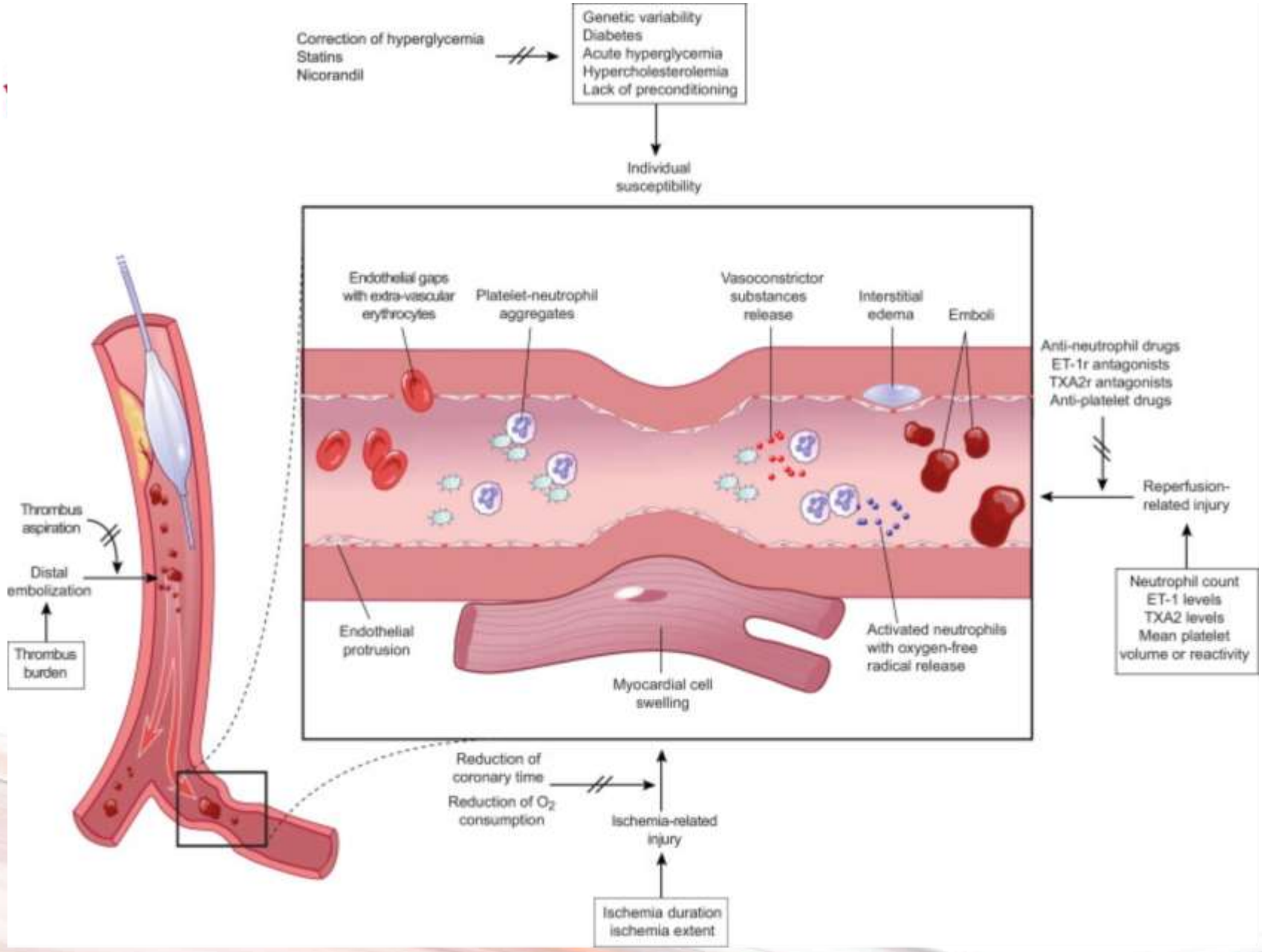

J Am Coll Cardiol. 2009;54(4):281-292. doi:10.1016/j.jacc.2009.03.054

European Heart Journal (2012) 33, 2569–2619
doi:10.1093/eurheartj/ehs215

ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation

Table 11 Primary PCI: indications and procedural aspects

Recommendations	Class[a]	Level[b]	Ref[c]
Indications for primary PCI			
Primary PCI is the recommended reperfusion therapy over fibrinolysis if performed by an experienced team within 120 min of FMC.	I	A	69, 99
Primary PCI is indicated for patients with severe acute heart failure or cardiogenic shock, unless the expected PCI related delay is excessive and the patient presents early after symptom onset.	I	B	100
Procedural aspects of primary PCI			
Stenting is recommended (over balloon angioplasty alone) for primary PCI.	I	A	101, 102
Primary PCI should be limited to the culprit vessel with the exception of cardiogenic shock and persistent ischaemia after PCI of the supposed culprit lesion.	IIa	B	75, 103–105
If performed by an experienced radial operator, radial access should be preferred over femoral access.	IIa	B	78, 79
If the patient has no contraindications to prolonged DAPT (indication for oral anticoagulation, or estimated high long-	IIa	A	80, 82, 106,
Routine thrombus aspiration should be considered.	IIa	B	
Routine use of distal protection devices is not recommended.	III	C	86, 108
Routine use of IABP (in patients without shock) is not recommended.	III	A	97, 98

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Case 1

- 69 year old Taiwanese tourist
- DM, Hypertension, ex smoker
- Inferior STEMI

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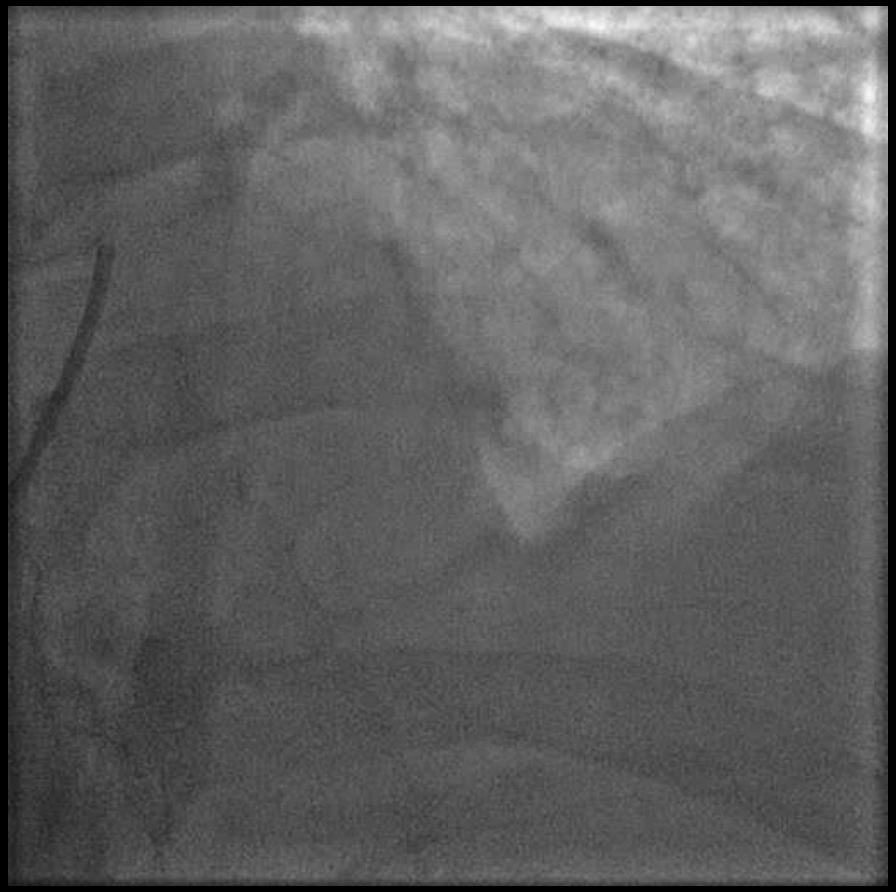
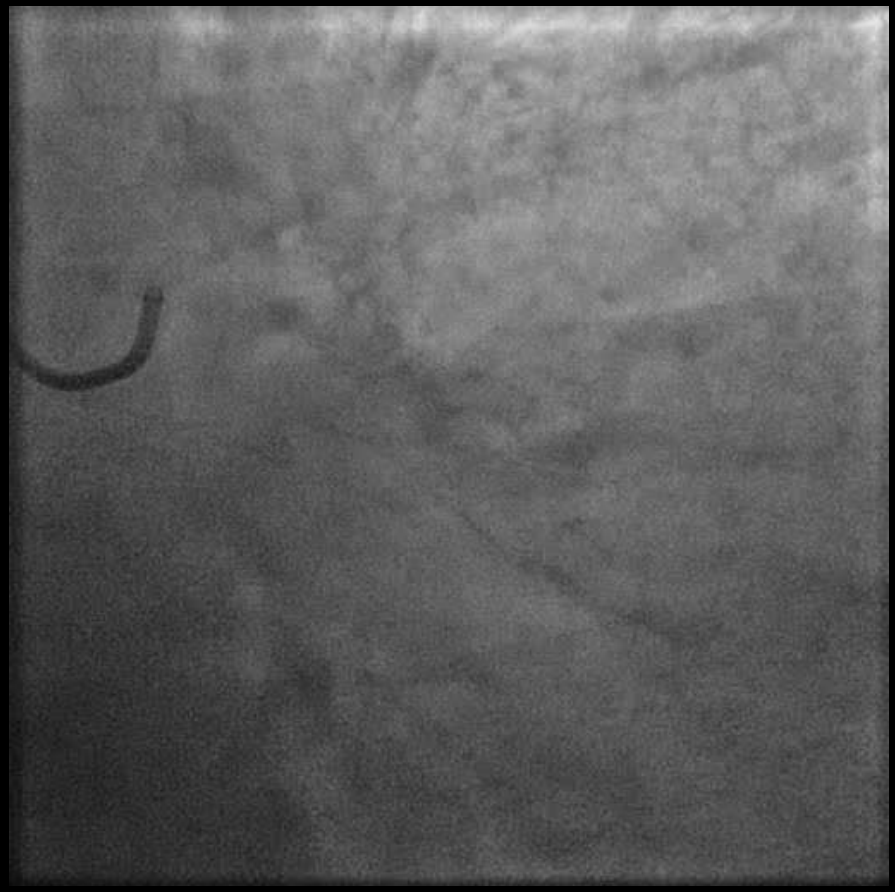
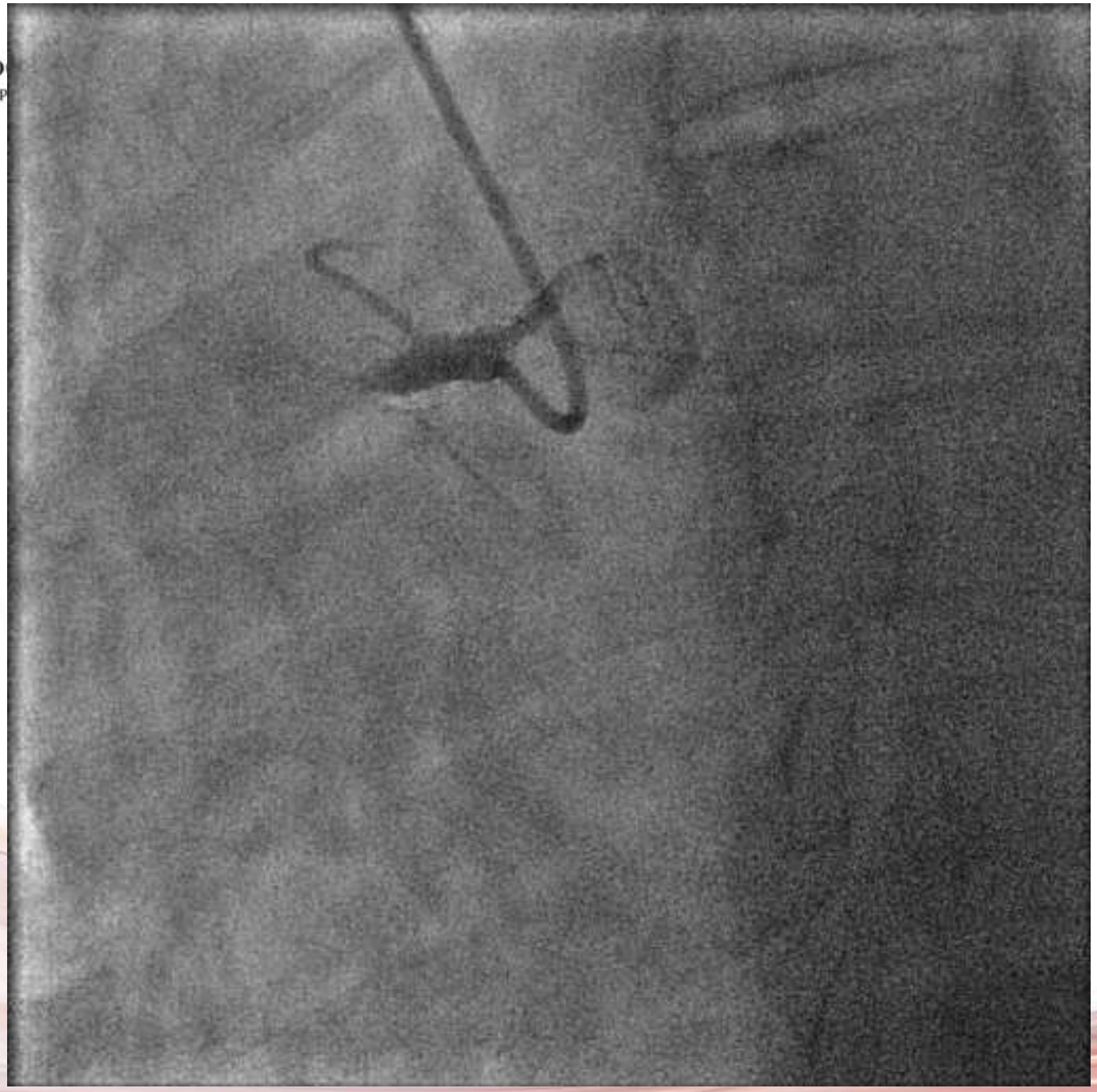
Standard Antiplatelet and Anticoagulation Regime

- Front loaded with Aspirin 300mg in ED
- Front loaded with Prasugrel 60mg in ED
- 6F right trans radial approach
- Intra arterial enoxaparin 0.5mg/kg given

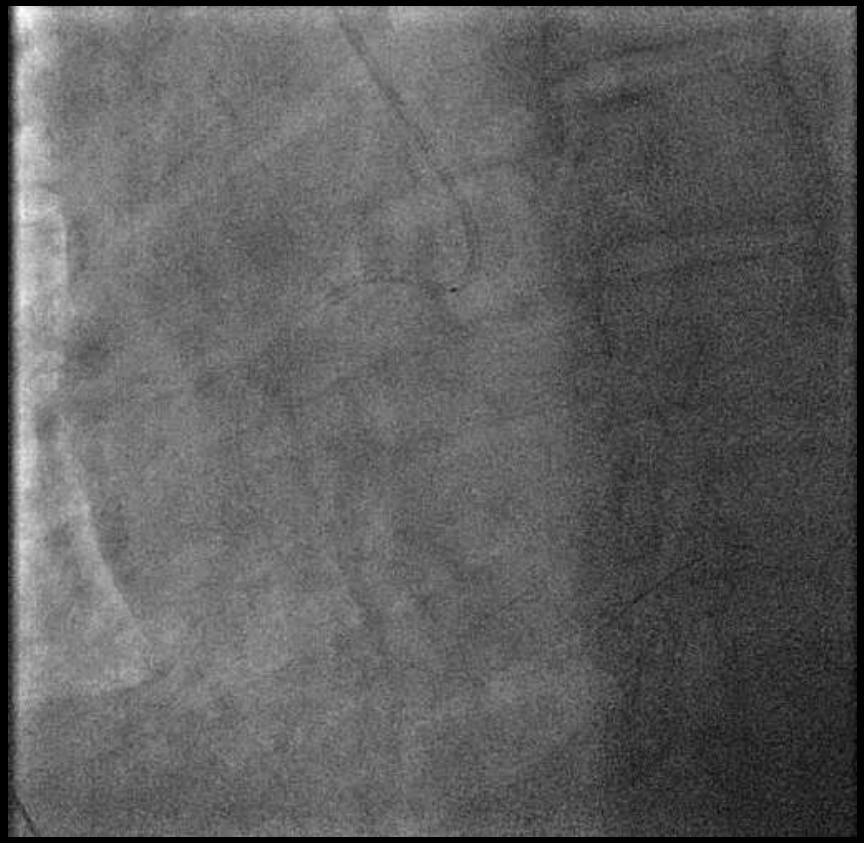
- IL3.5 guide for LCA
- AL 0.75 for RCA



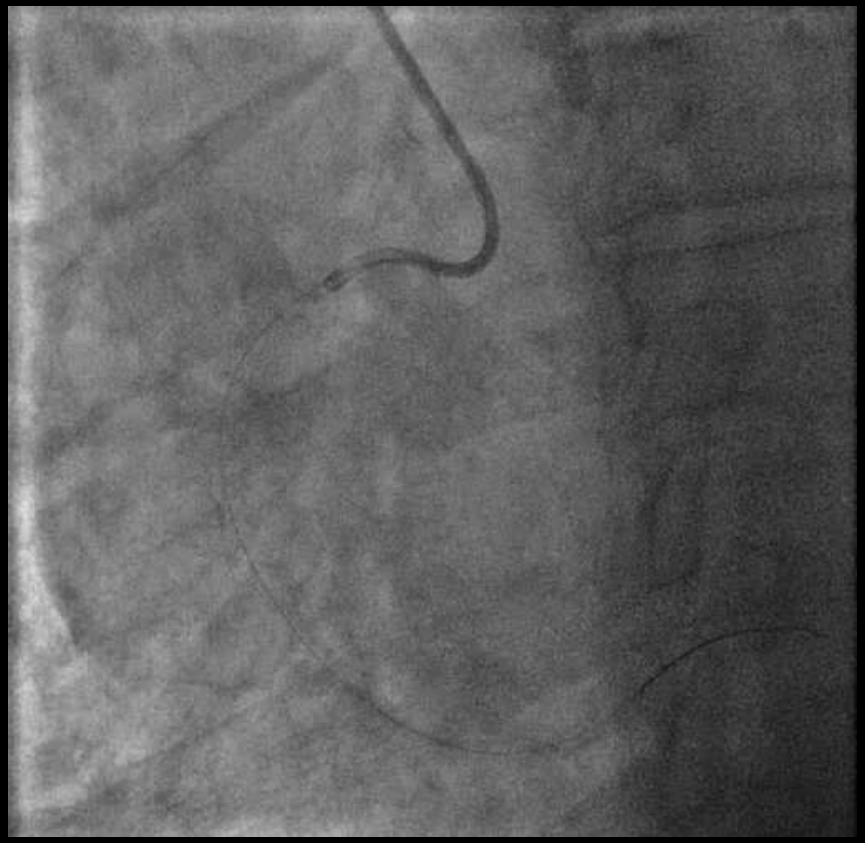




RunThrough Wire
Export Aspiration Catheter

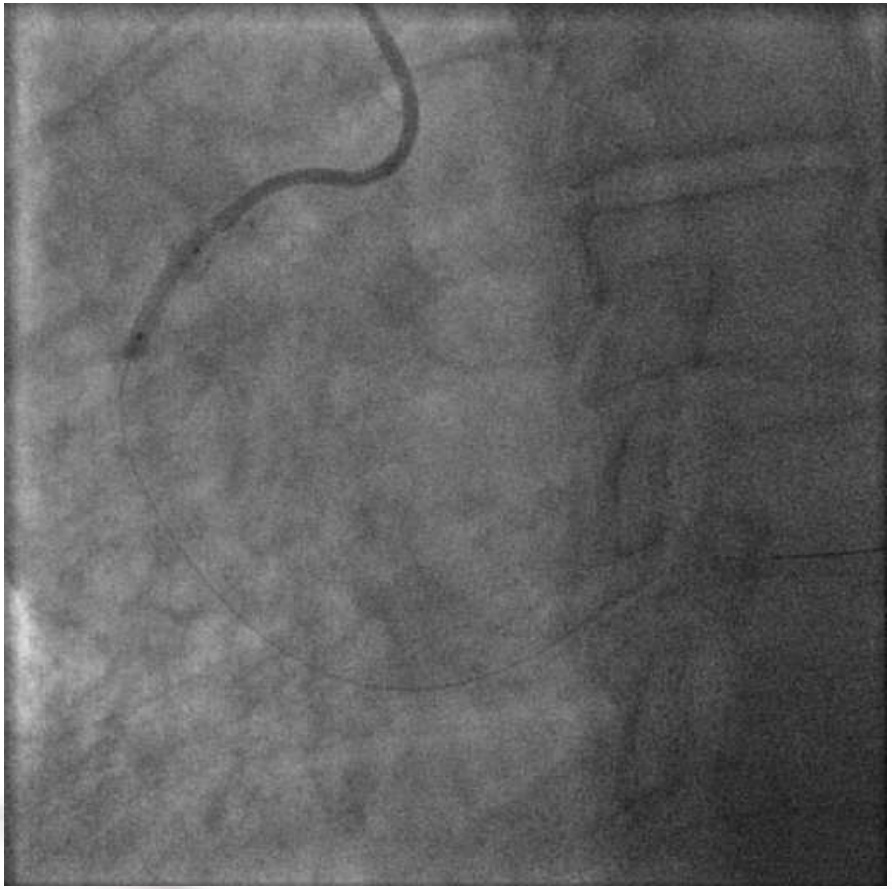


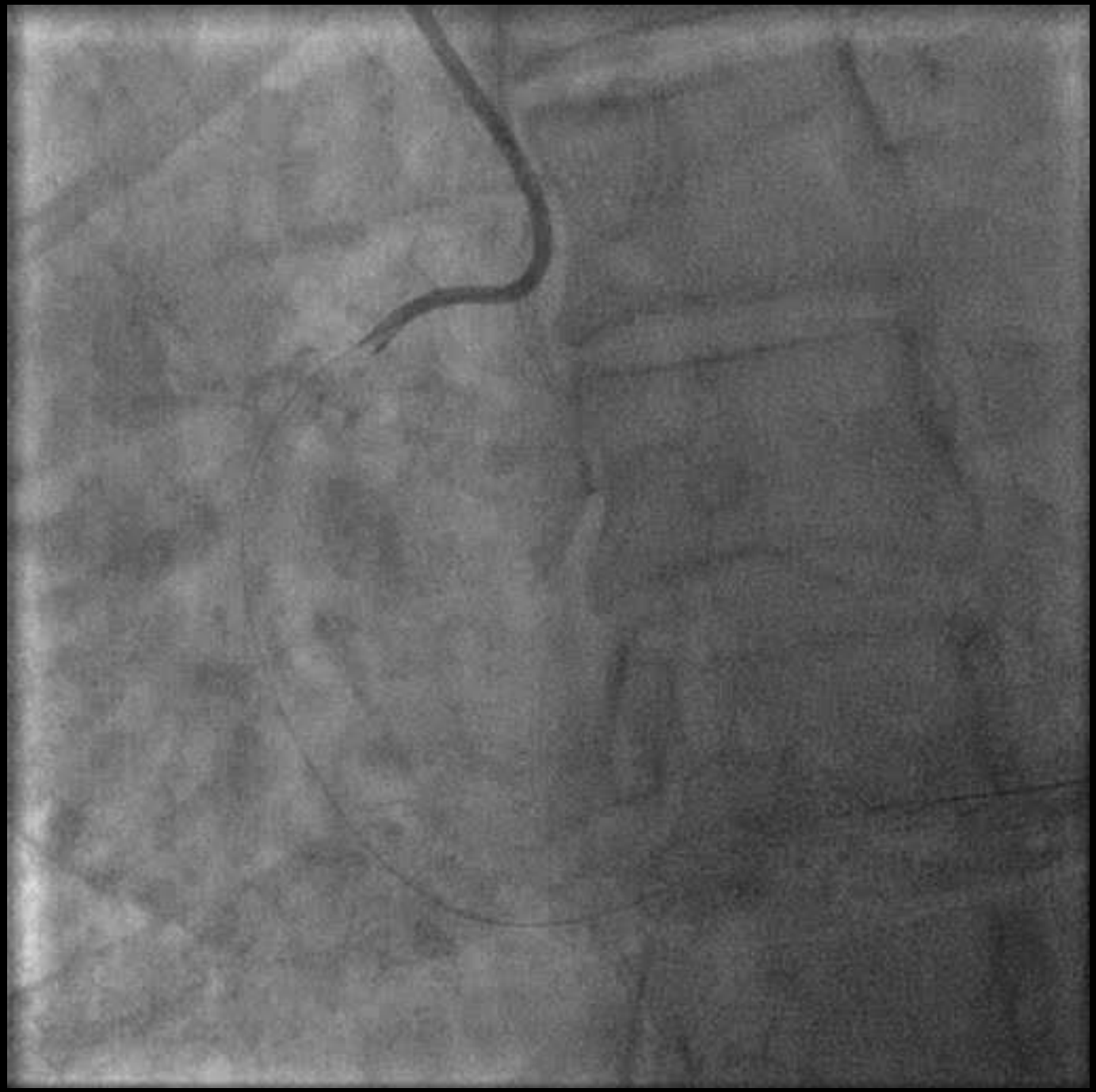
After Aspiration
TIMI 1 flow



Grade IV thrombus

- ic adenosine 100mcg
- 2 boluses of ic Integrillin given
- Predilated the lesion to facilitate aspiration device crossing





Despite further aspiration
TIMI 1 flow

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Rheolytic Thrombectomy

- AngioJet rheolytic thrombectomy
  - Consists of a drive unit, a disposable pump set and a dual lumen catheter

- AiMI study
- JETSTENT trial

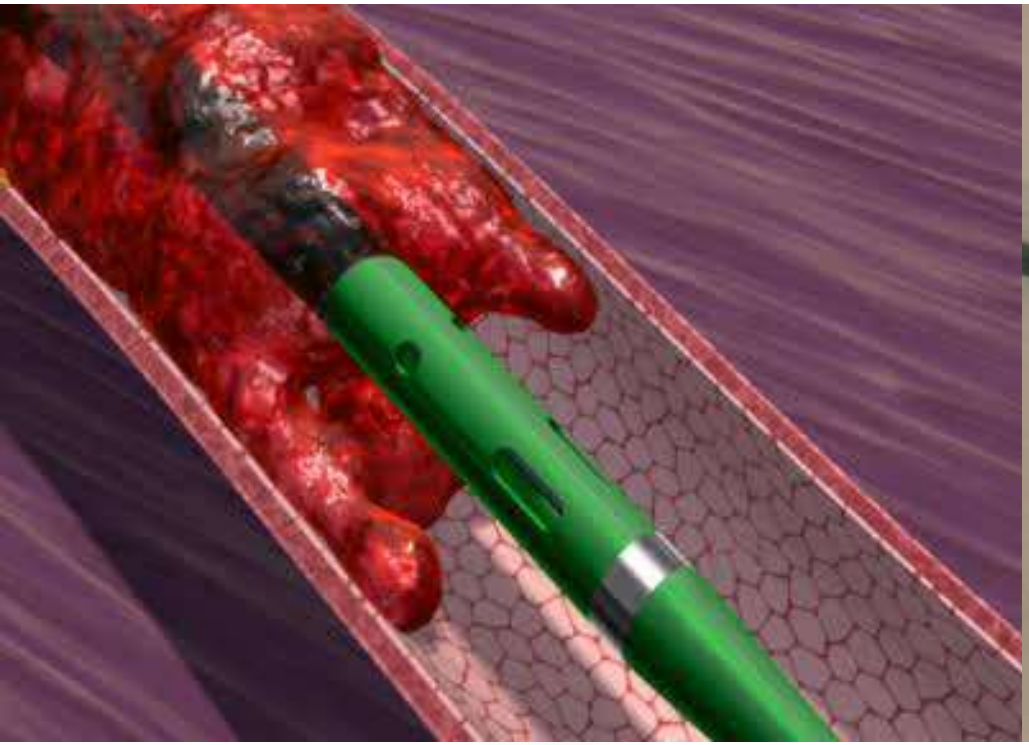
The Journal of Invasive Cardiology

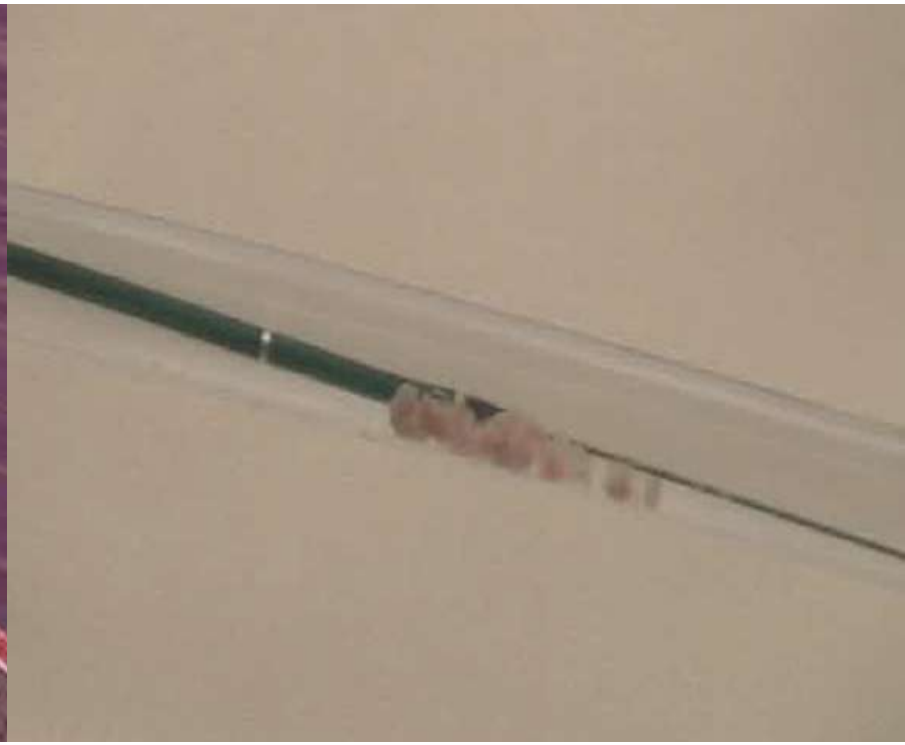
The Current Role of AngioJet Rheolytic Thrombectomy in Acute Myocardial Infarction

Volume 22 - Issue 10 - October, 2010 (B) Supplemental Issue

Author(s):
Molly Szerlip, MD, FACP,[1] and Cindy L. Grines, MD, FACC[2]

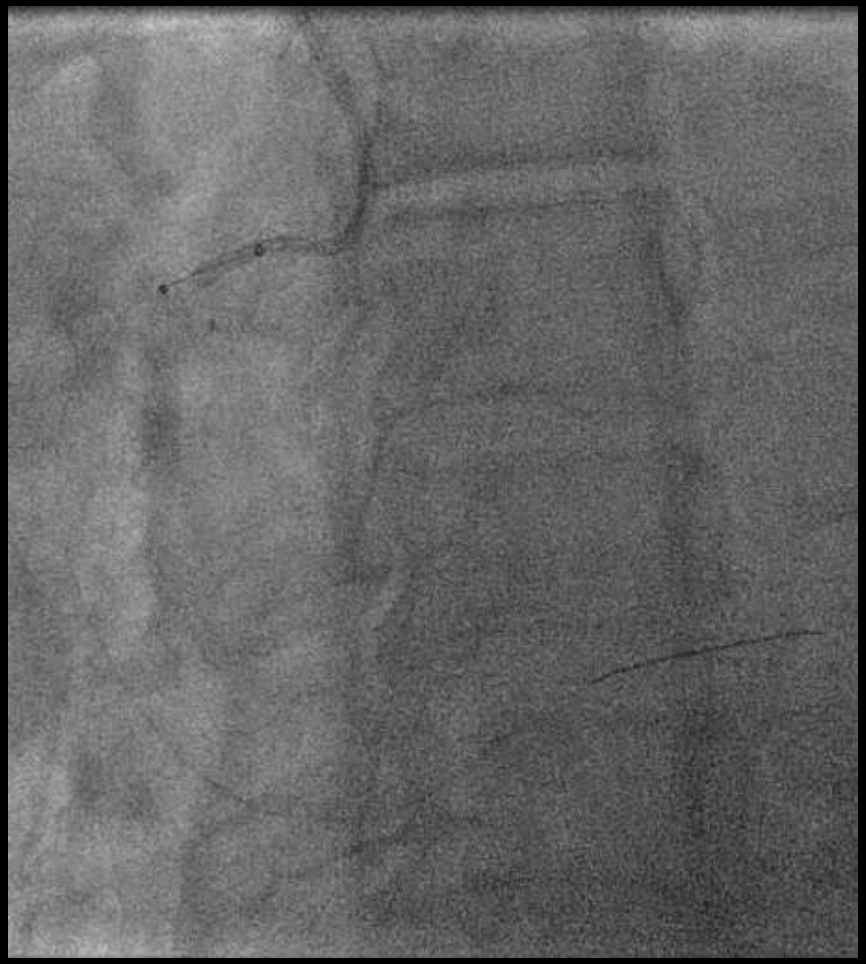
AngioJet 4F

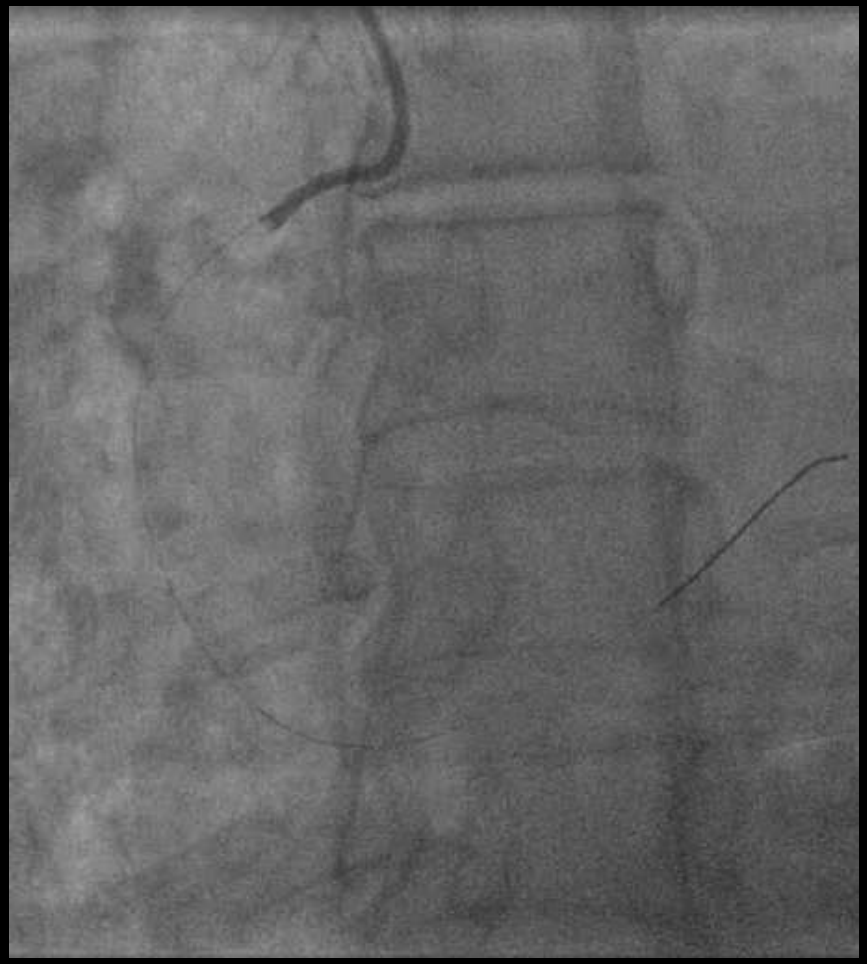




- High velocity saline jets are directed back into the catheter, creating a low-pressure zone at the distal tip (Bernoulli principle), which results in suction, break-up and removal of thrombus through the outflow lumen.
- Transcutaneous pacing as backup

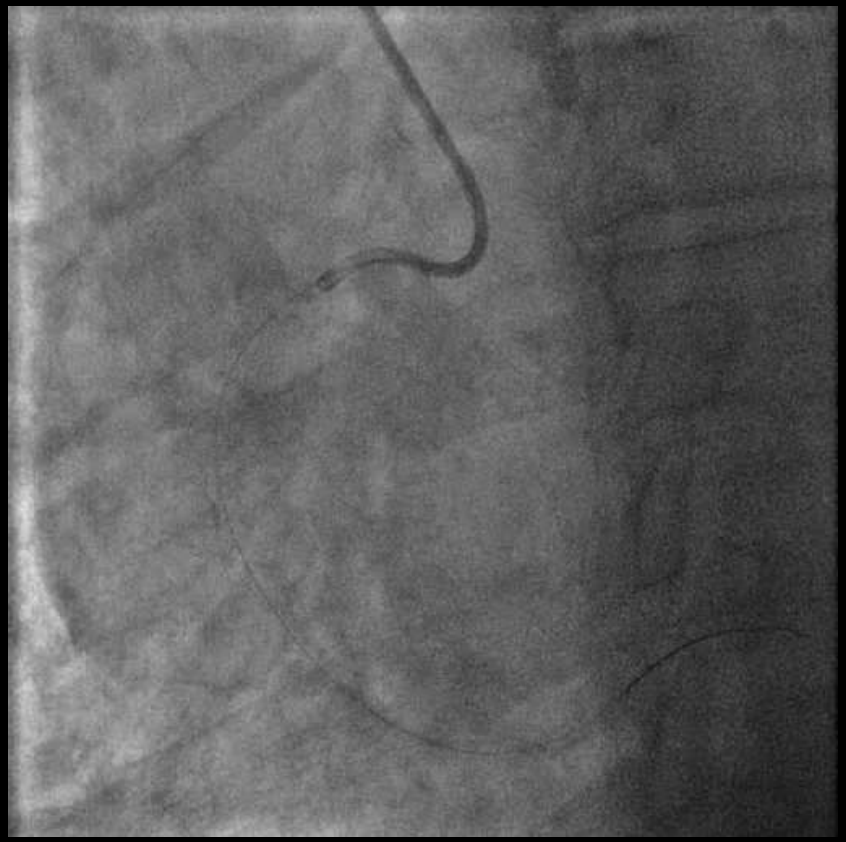
After 1 run of Angiojet



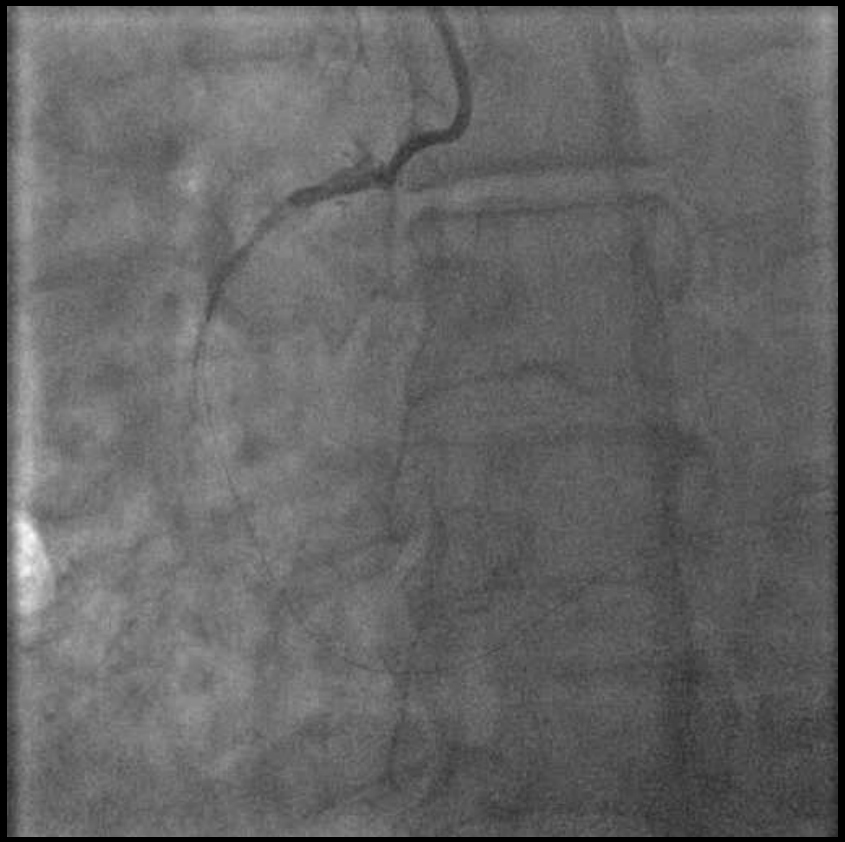


After 2nd run of Angiojet

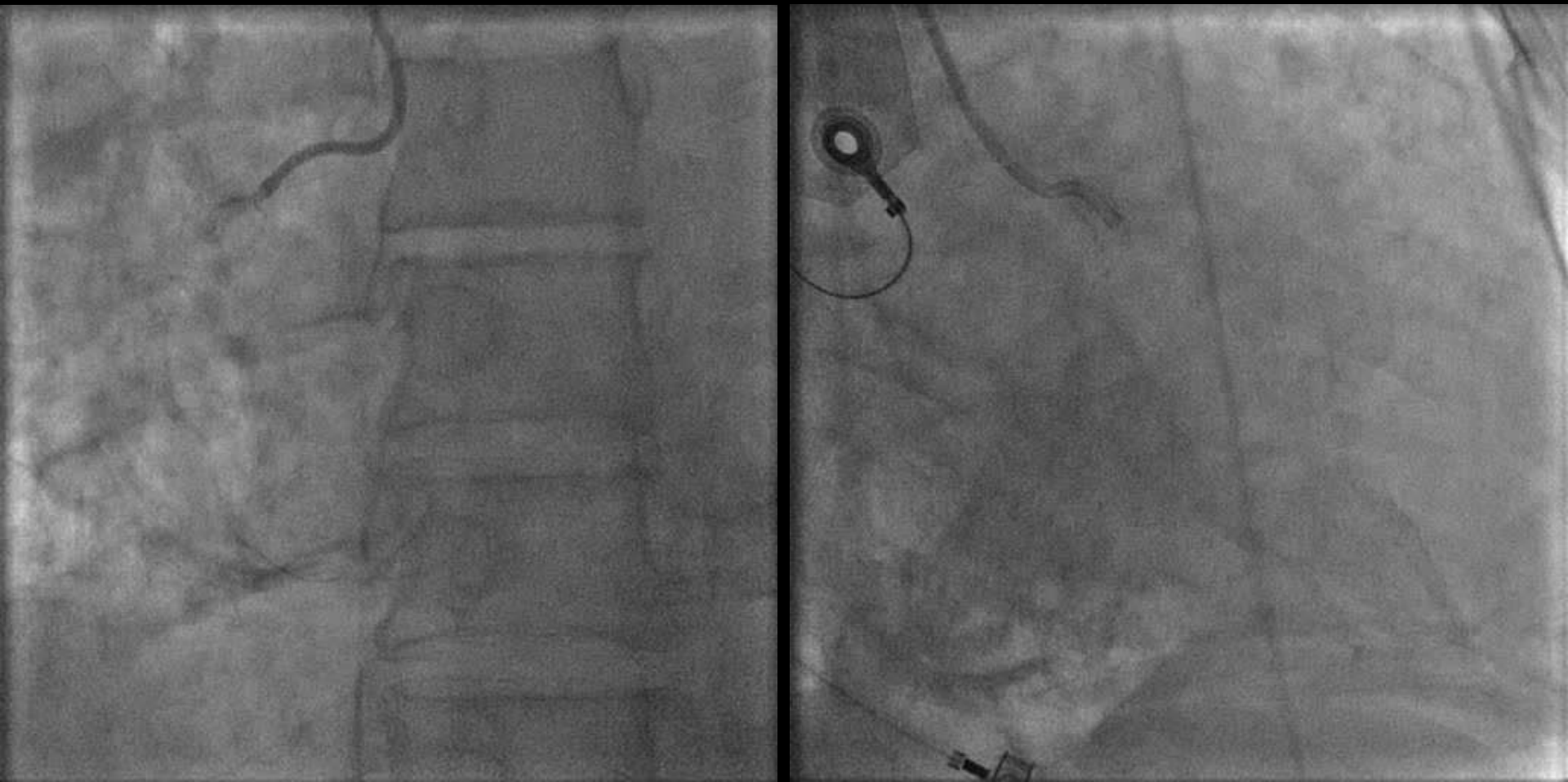
Before



After 2 runs of Angiojet



Liberte 5.0 x 24 mm at 16 atm



Case 2

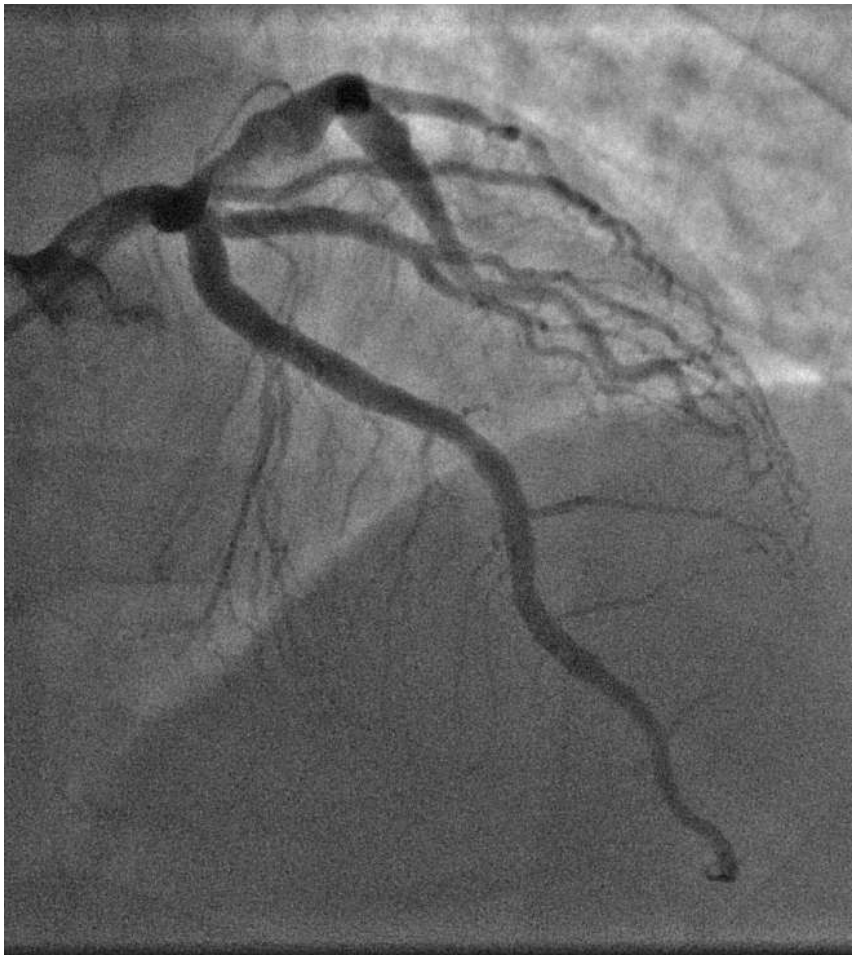
- 43 year old male
- DM, Hypertension
- Inferior STEMI

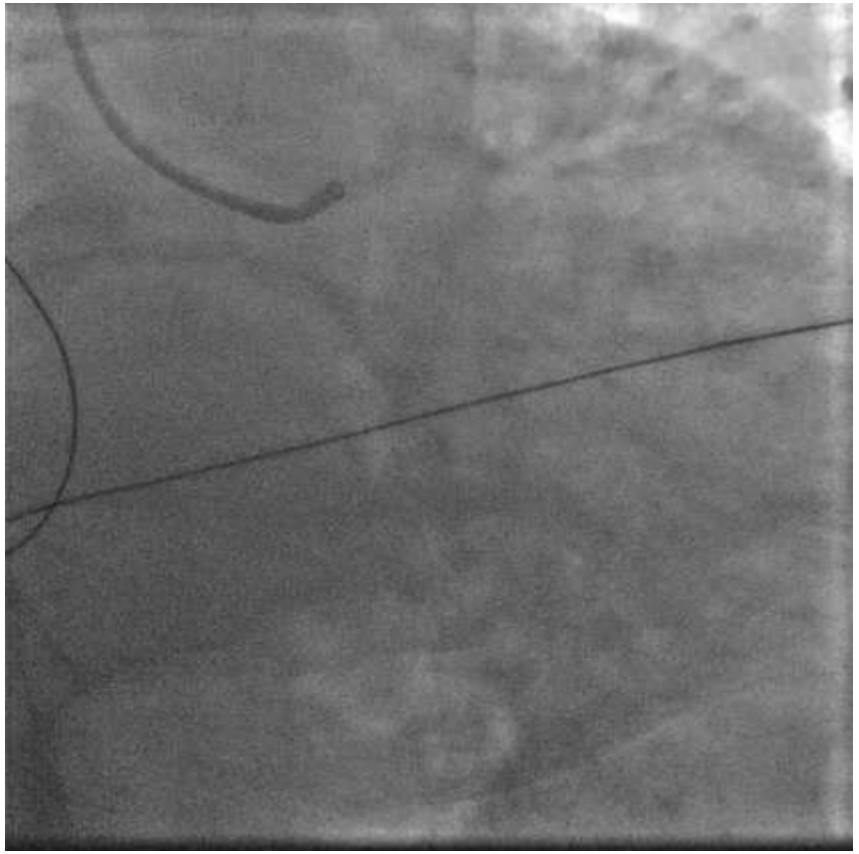
Standard Antiplatelet and Anticoagulation Regime

- Front loaded with Aspirin 300mg in ED
- Front loaded with Prasugrel 60mg in ED
- 6F right trans radial approach
- Intra arterial enoxaparin 0.5mg/kg

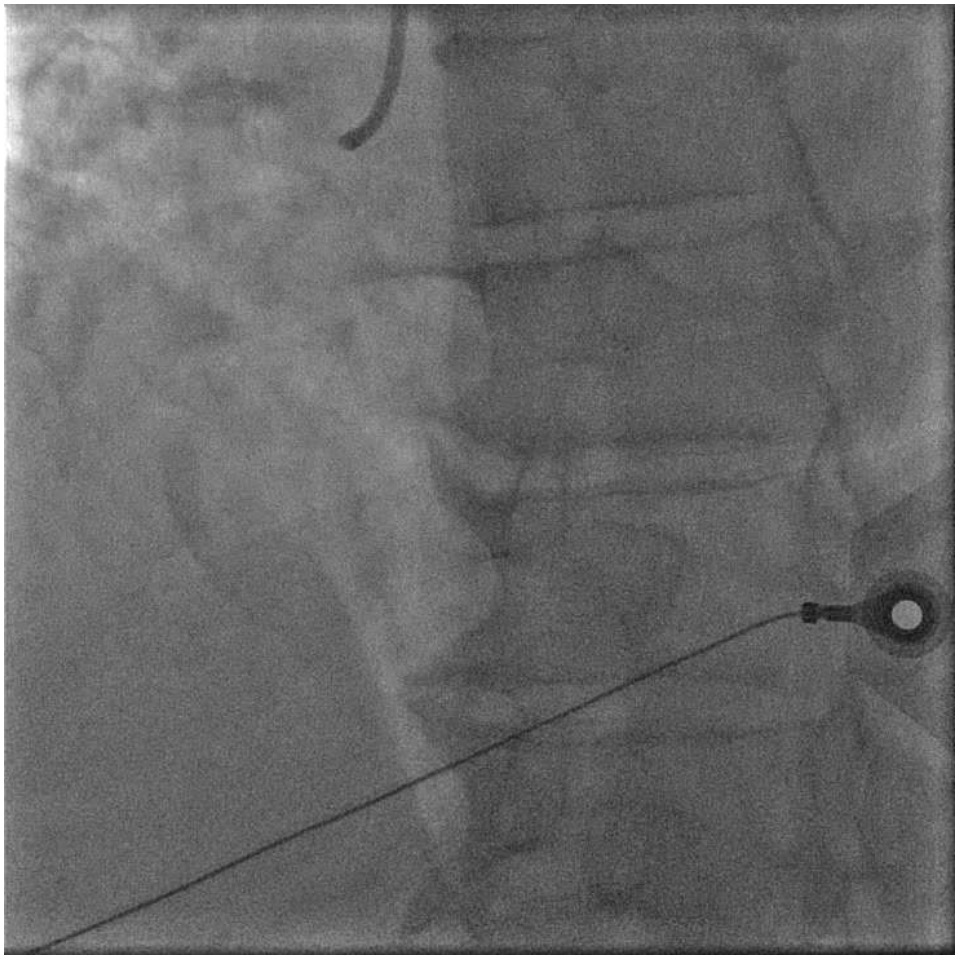
- 6F IL3.5 guide for LCA and RCA

Note the ectatic nature of LCx

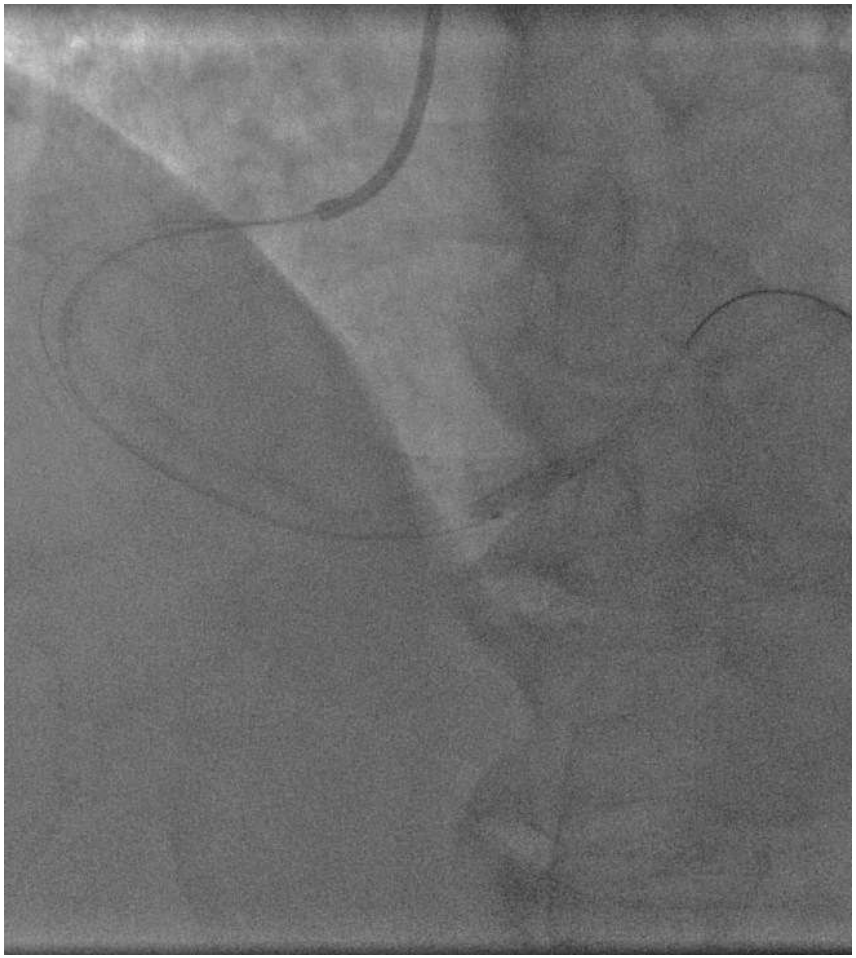


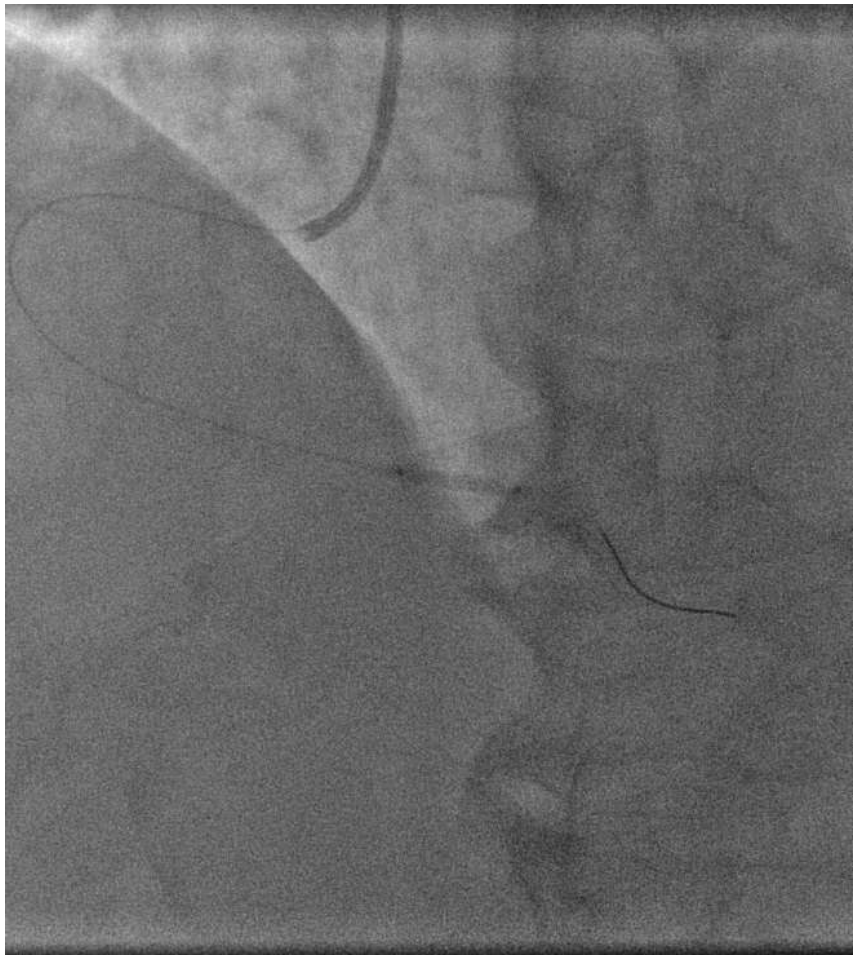


Culprit vessel

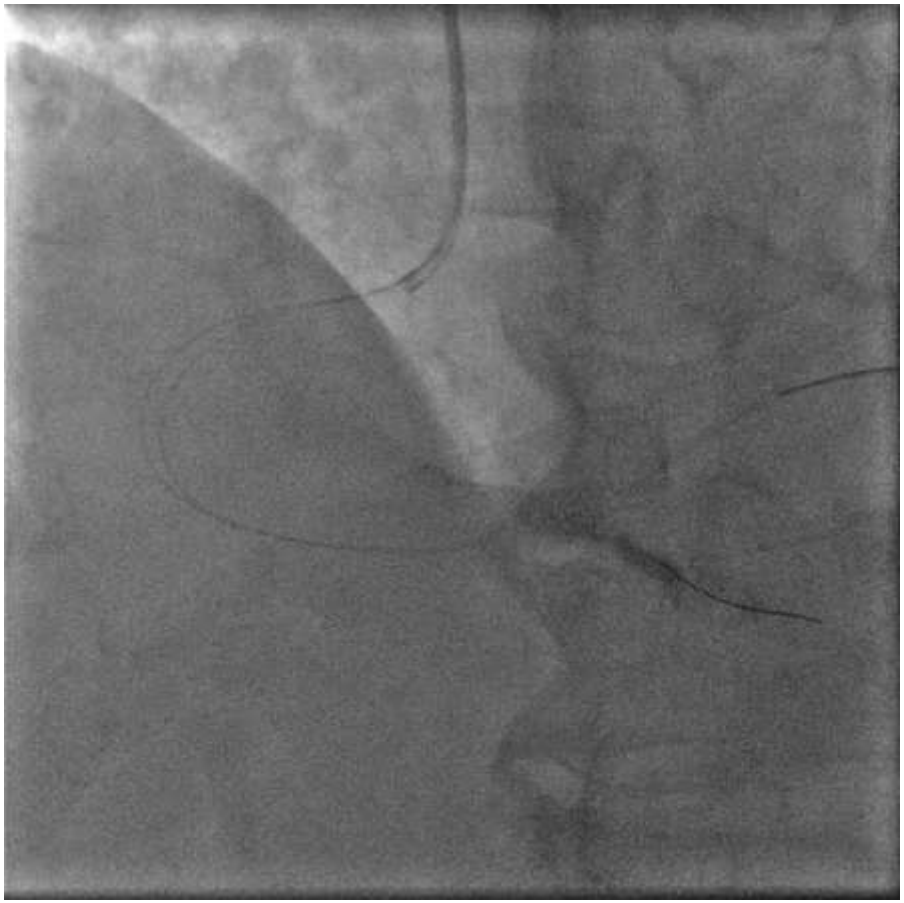


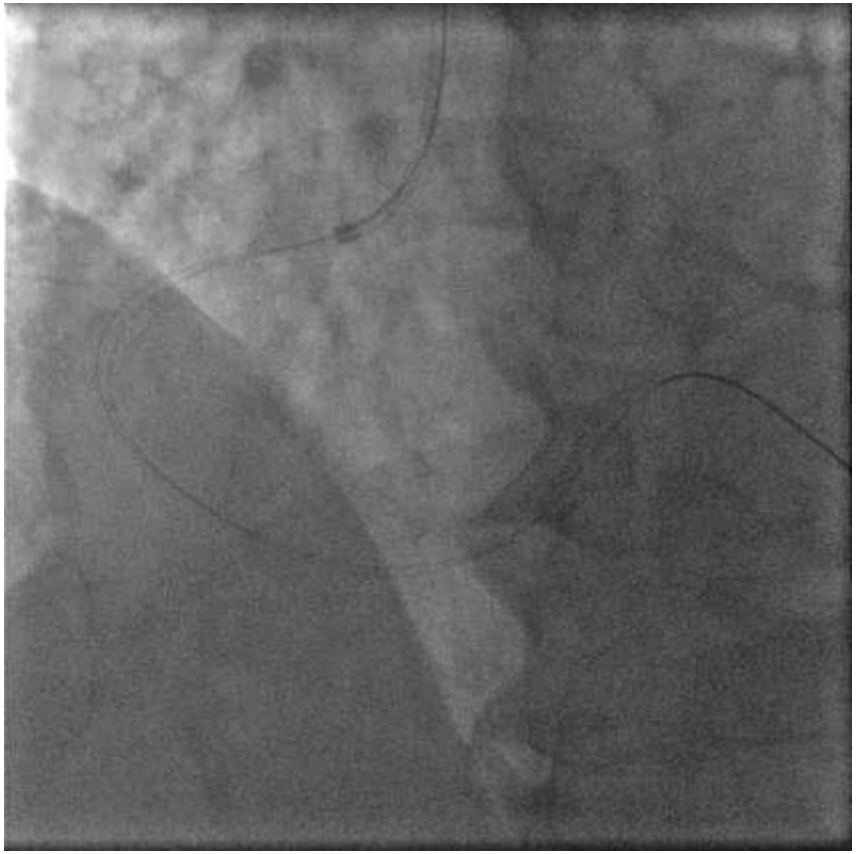
After repeated aspiration & POBA





After Angiojet

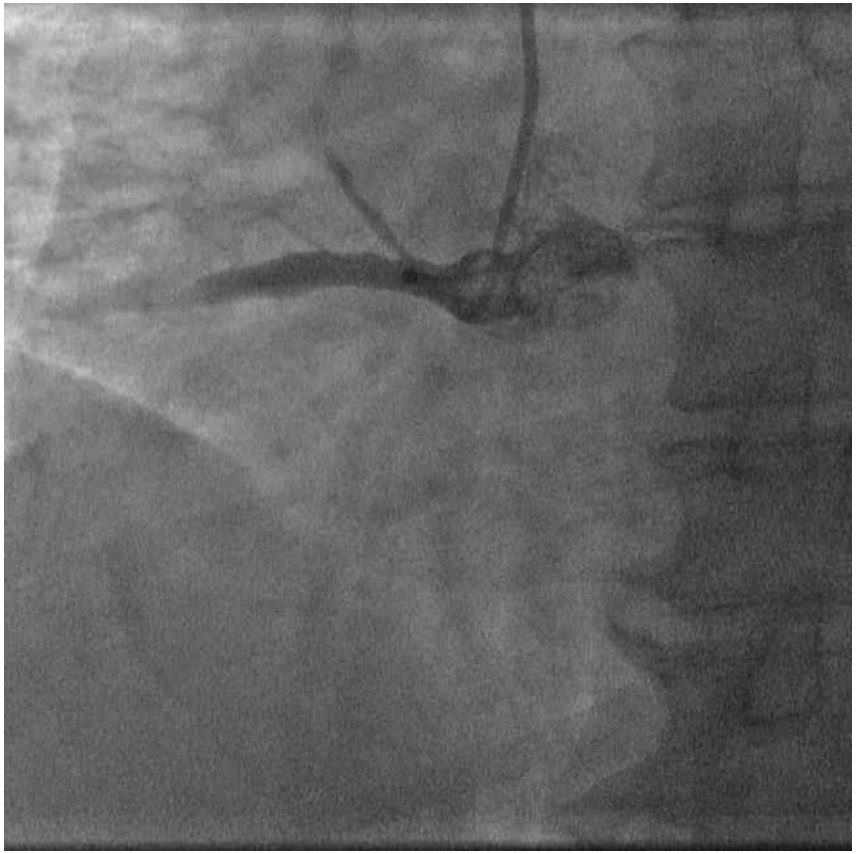




- TIMI 2 flow restored
- Chest pain settled
- ST slightly better

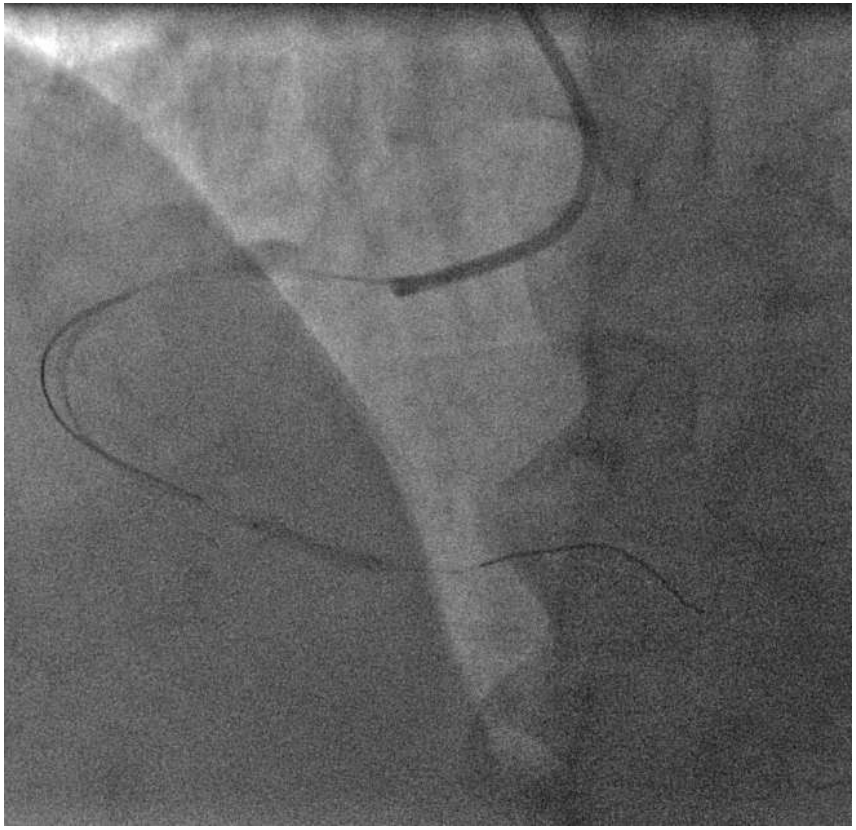
What to do next?

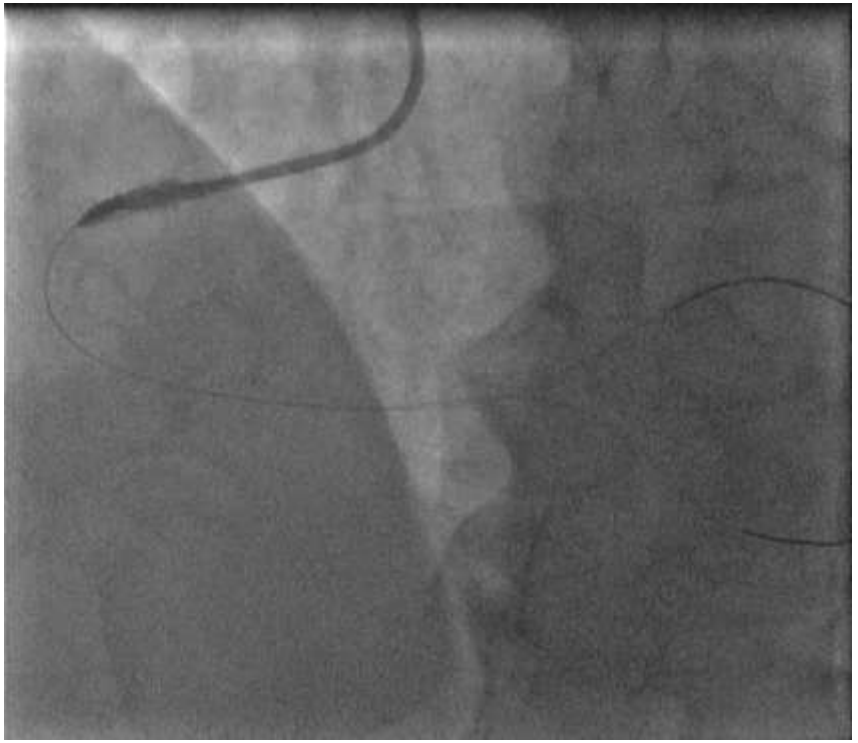
Overnight iv IIbIIIa but following morning



- Chest pain again
- ST gone up

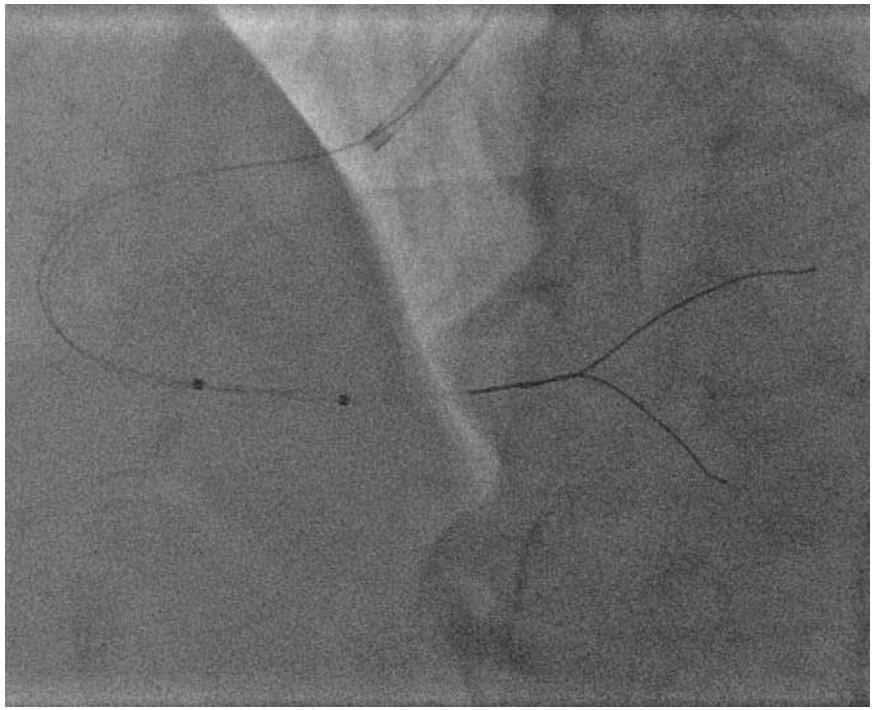
7F HS guide
After rewiring and ballooning and aspirating with 7F TA





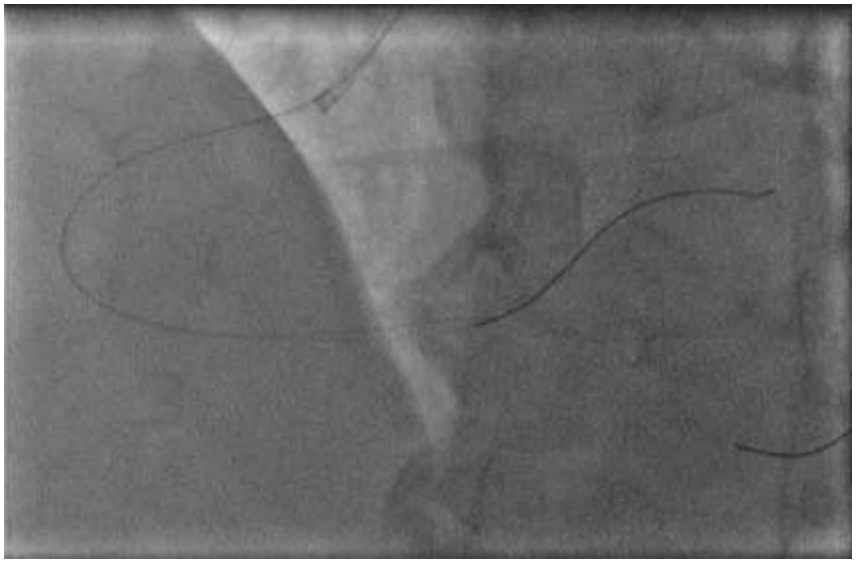
What else can we do?

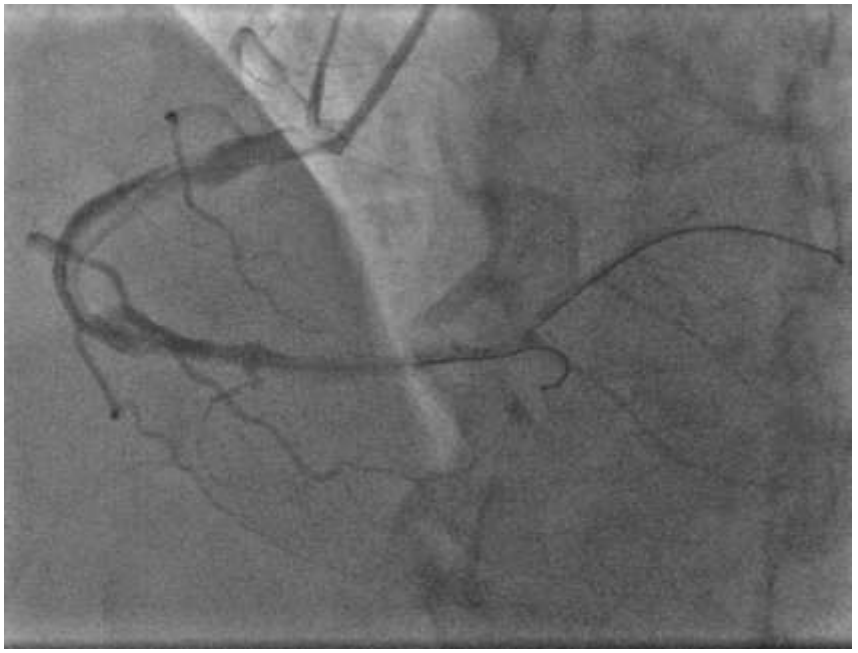
Intracoronary Thrombolysis



15 mg of Alteplase given over 2 mins

15 mins later

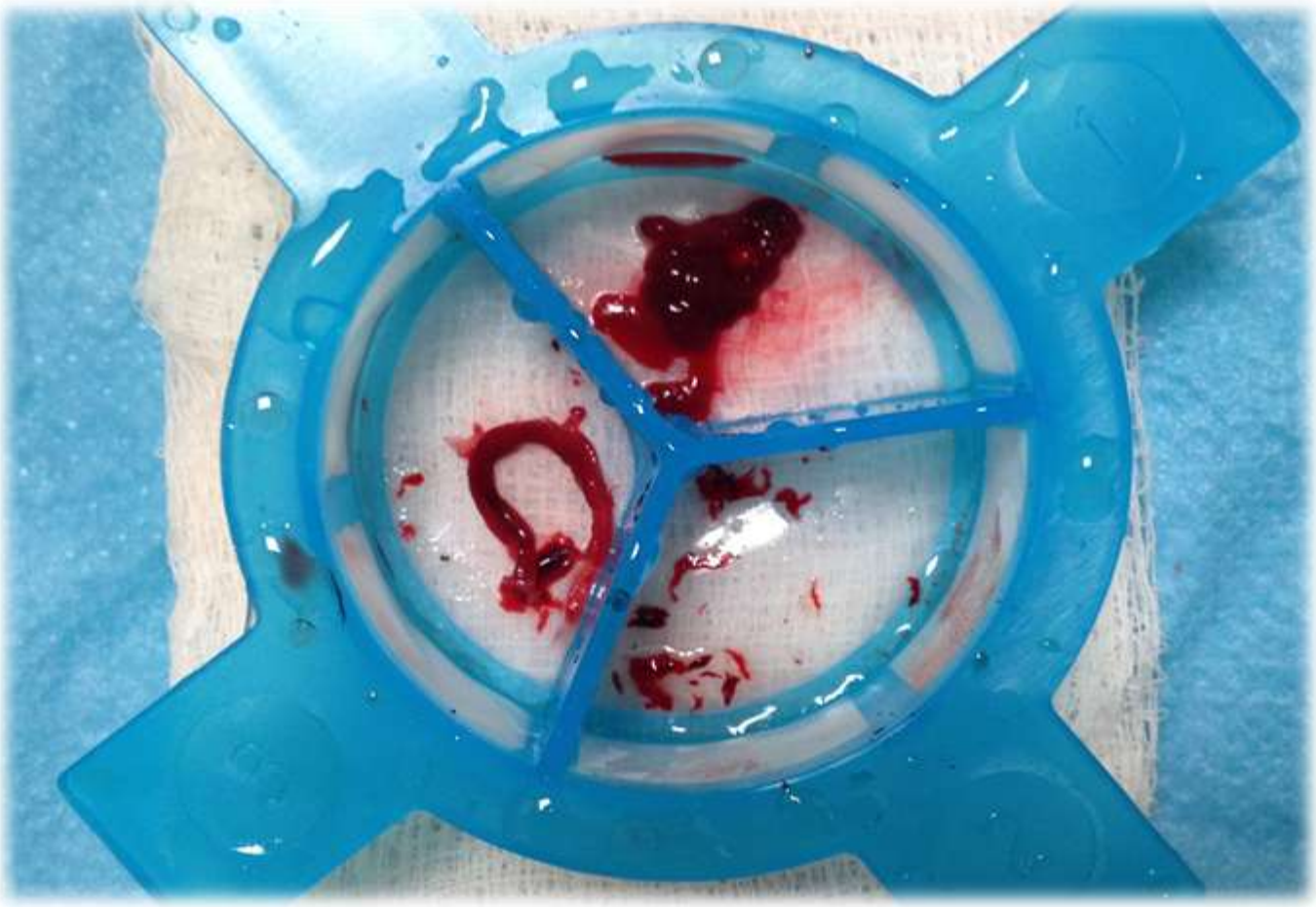




7F Eliminate was used

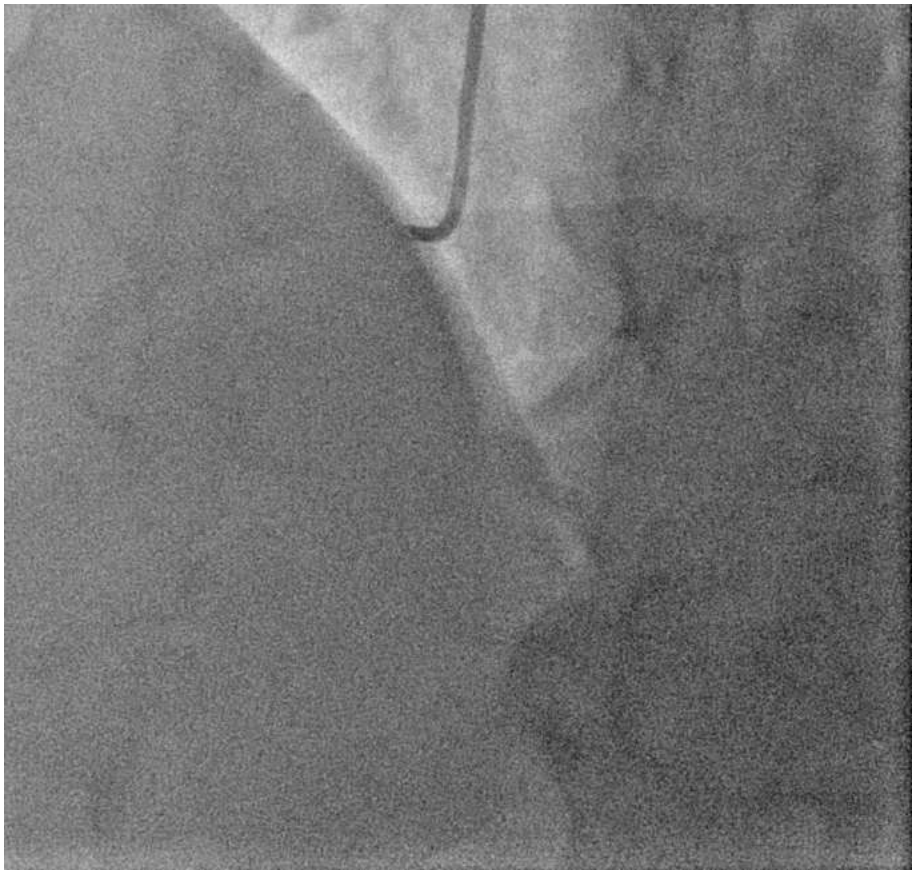
- After pulling out the aspiration catheter lost guidecath pressure
- Unable to aspirate back from Y connector
- Entire guidecath removed under negative suction.

Organised Clot
flushed out from the guide

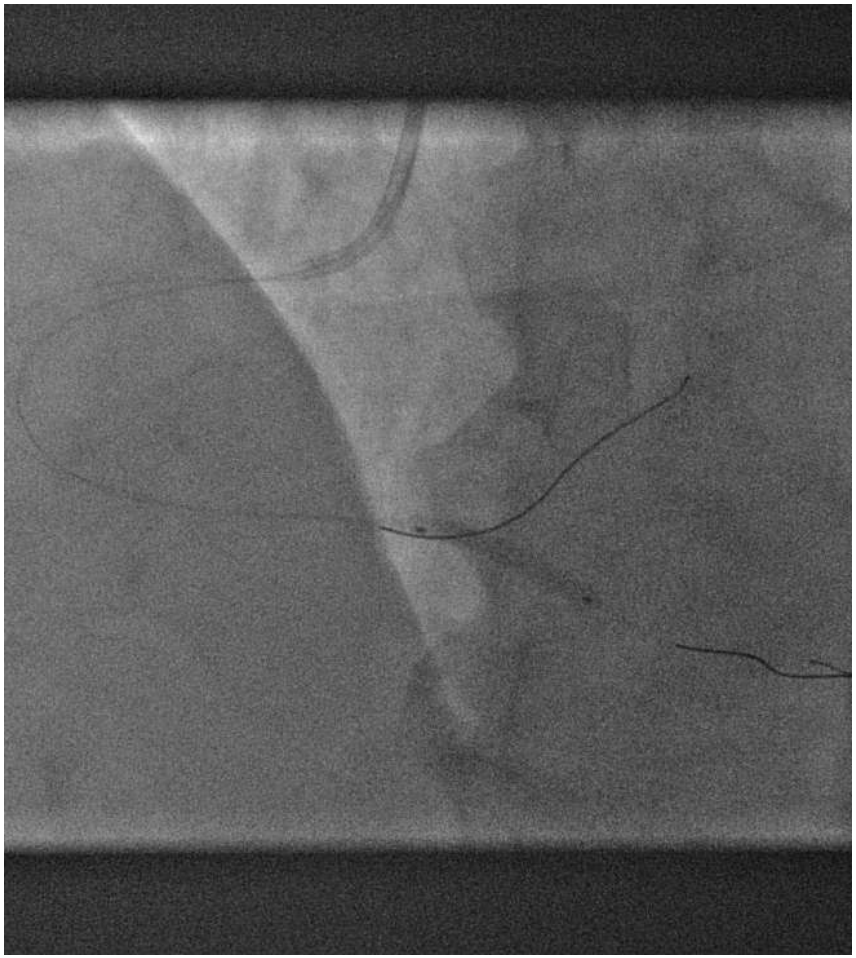


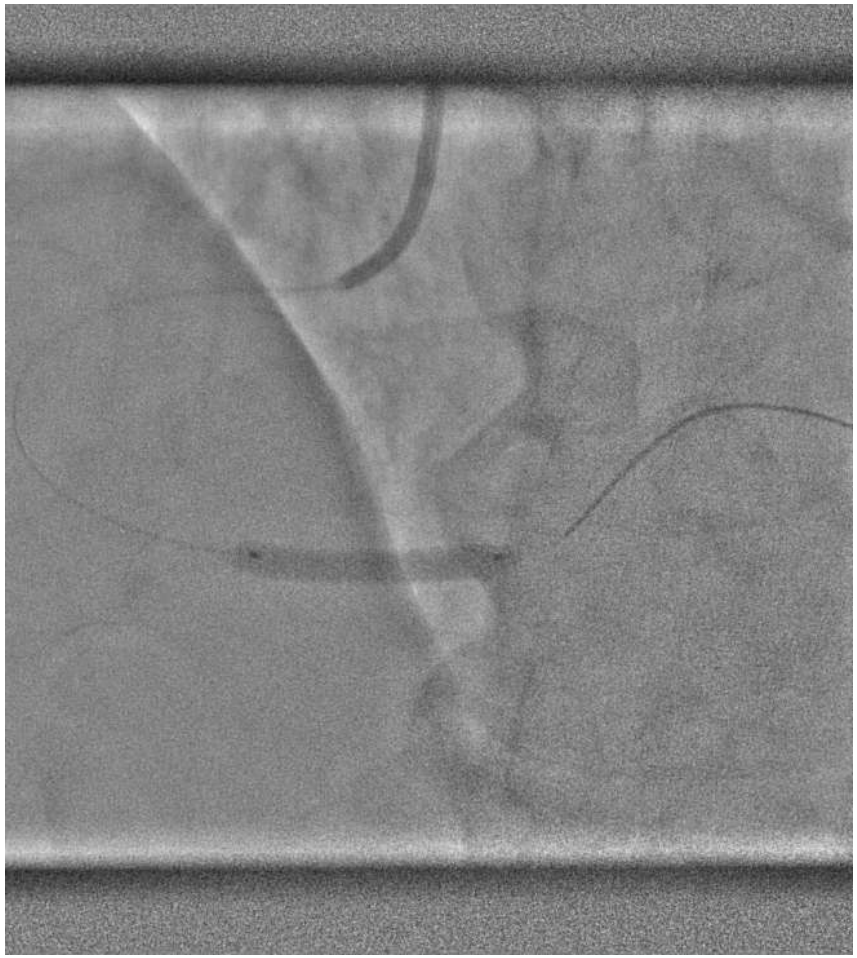
TIMI 3!

- After regaining access from same route
- PDA came back too!

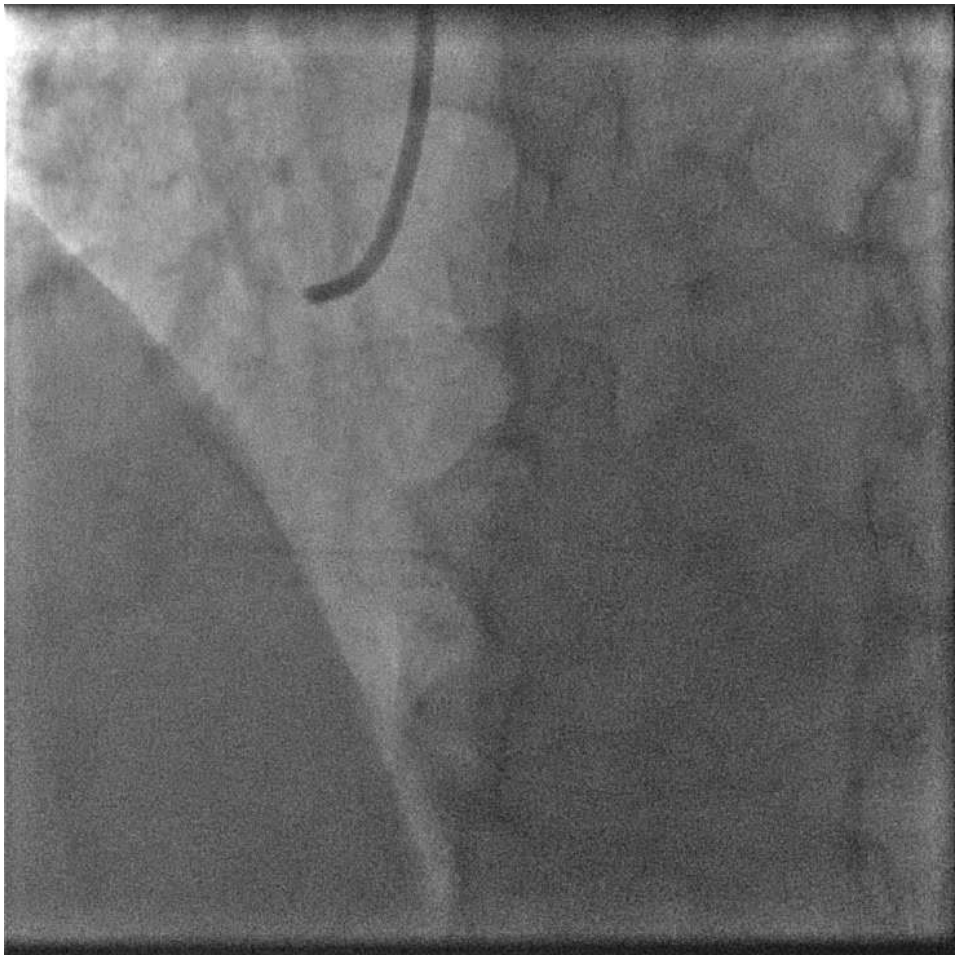


3.0mm and 4.0mm stent deployed





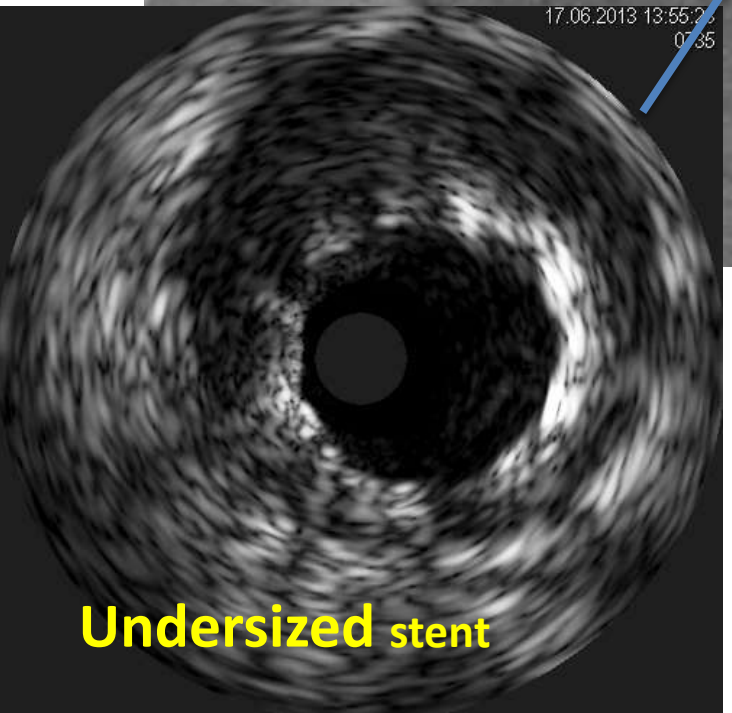
End of procedure

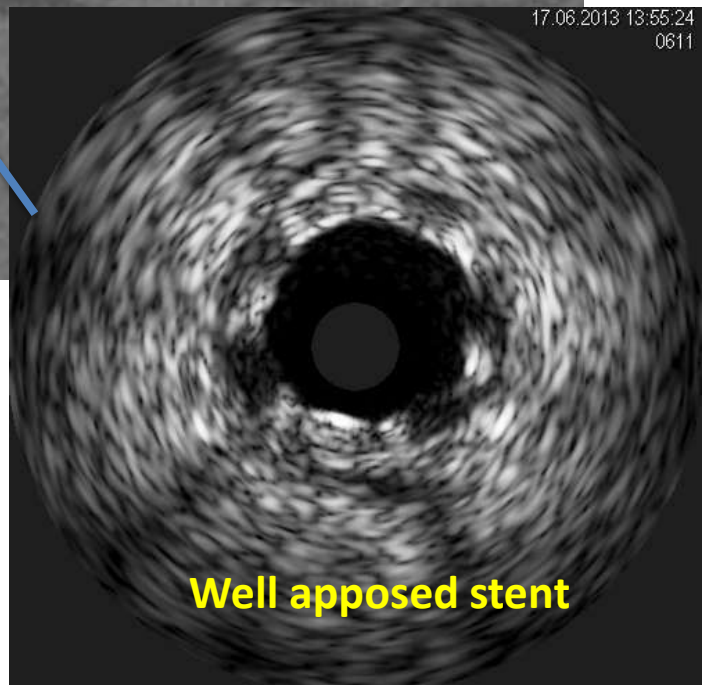


Post dilate? Kiss it?

- Keep it simple in acute highly thrombo-embolic phase
- Restore flow
- Assess RCA territory further

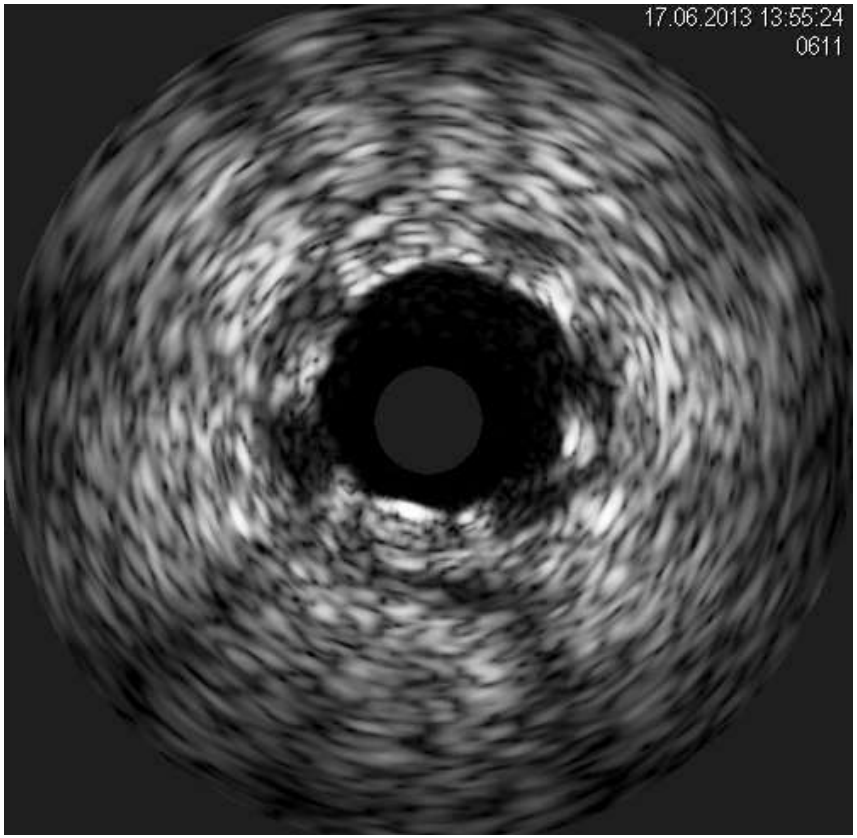
5 days later - optimisation


Undersized stent

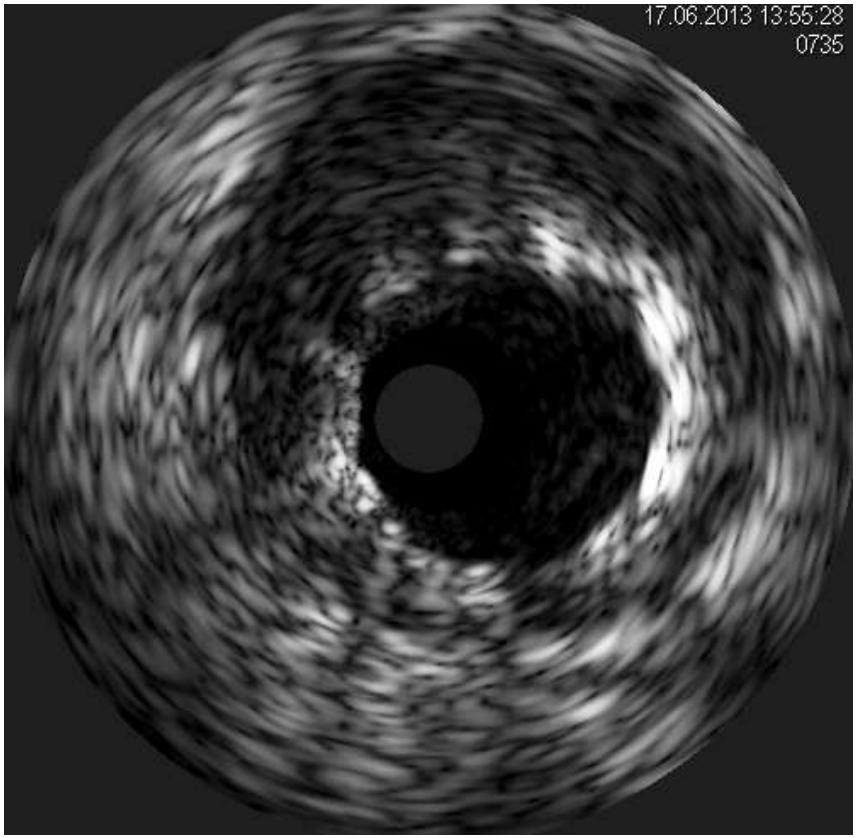

Well apposed stent

5 days later - optimisation

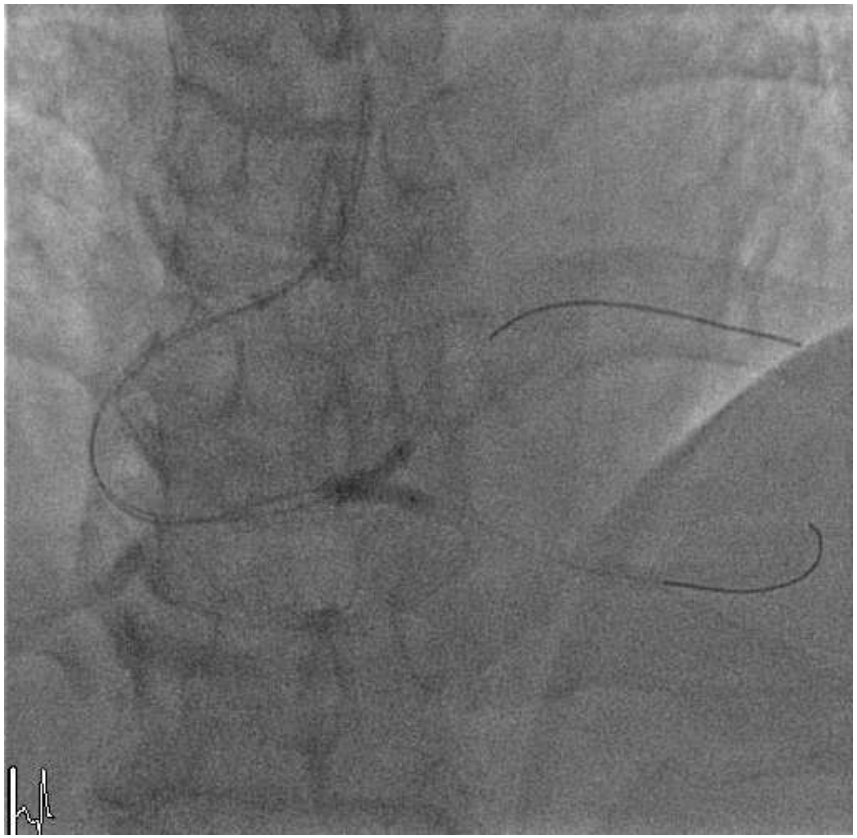
PDA



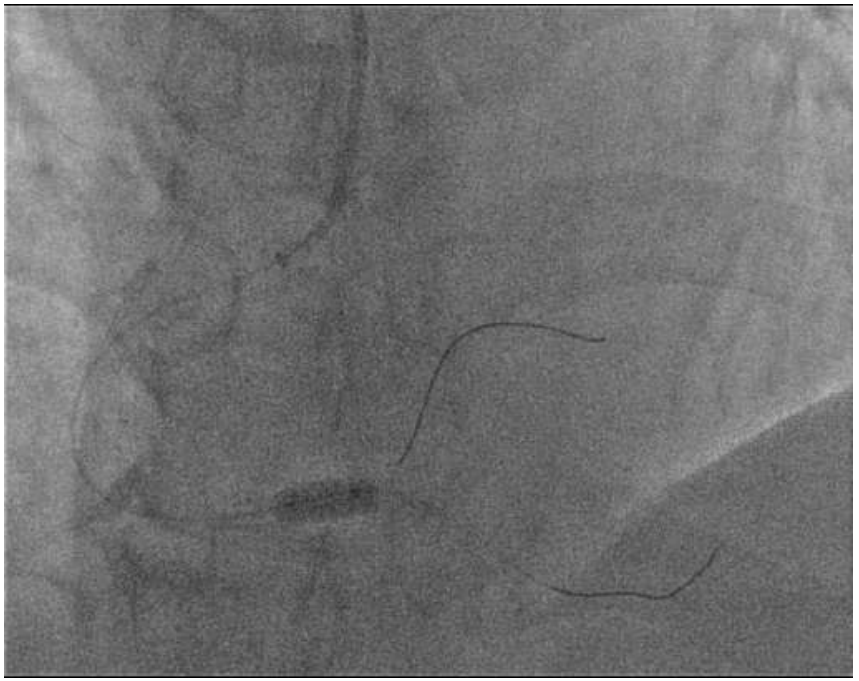
Distal RCA



3.0 and 3.0 Kissing

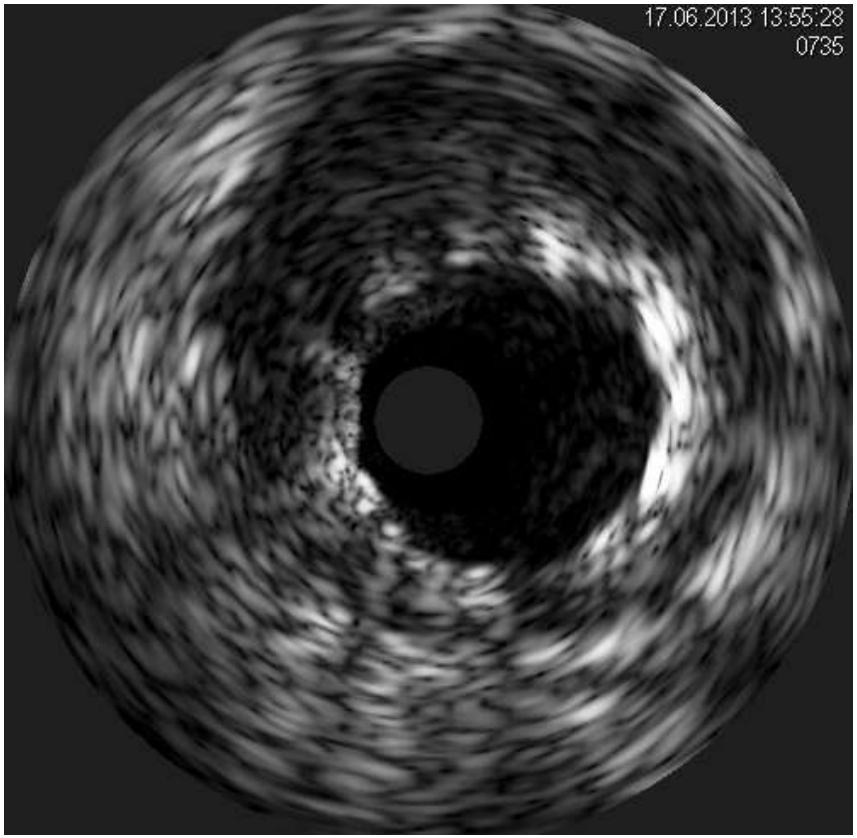


6.0mm Post dilatation

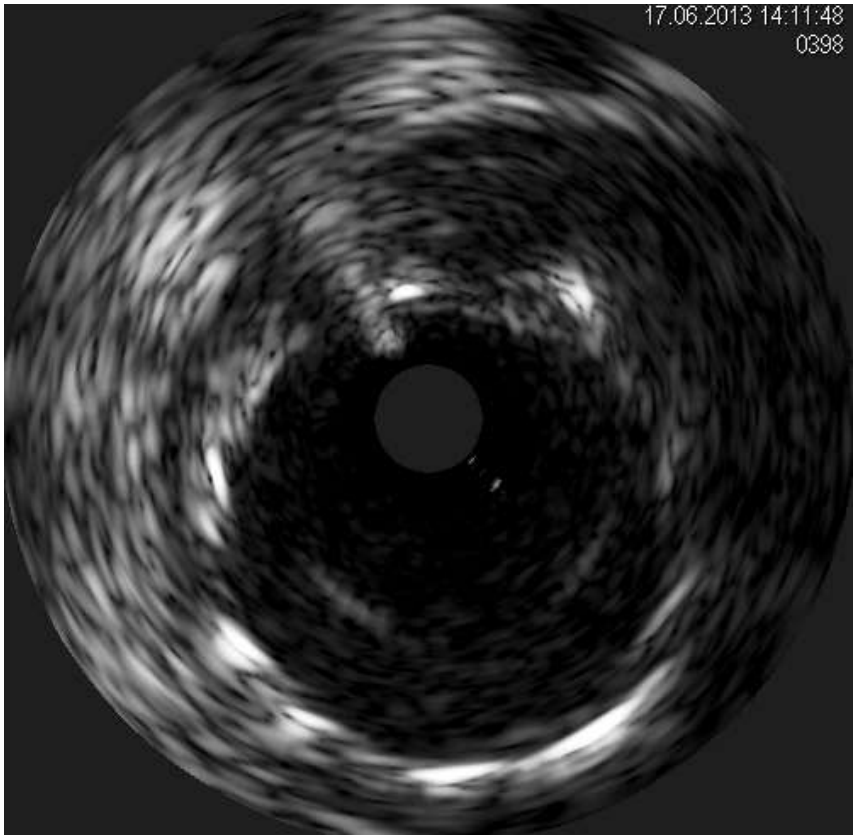


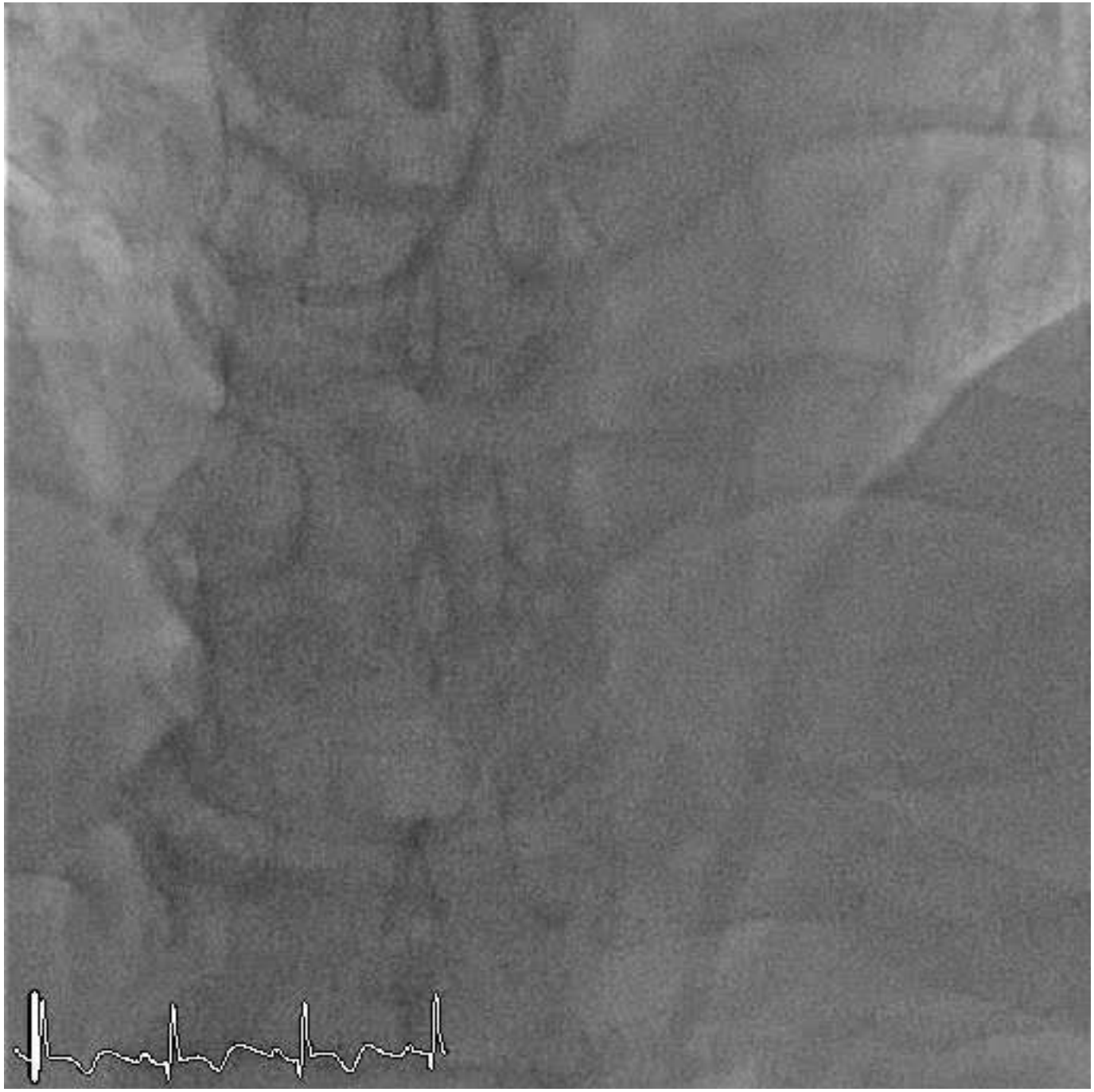
Distal RCA

Before post dilatation



Still undersized after 6.0





Follow up

- Doing well
- Inf wall hypokinesia
- Completed 6 months of Prasugrel and Aspirin
- Now on clopidogrel & Rivaroxaban 2.5mg Bd

Summary

- Very large thrombus management can be tricky
- Guideline does not always help
- Interventionists should be familiar with manual and mechanical thrombectomy devices

Judge a man by his questions and not by his answers.

ASIA PRIMARY ANGIOPLASTY CONGRESS 2014

Doing our best to treat AMI

2nd & 3rd August 2014, Singapore

Organised by:

Tan Tock Seng Hospital

A member of National Healthcare Group
Adding years of healthy life

Endorsed by:

www.apac.sg