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Complicated Left Main PCI

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Disclosure

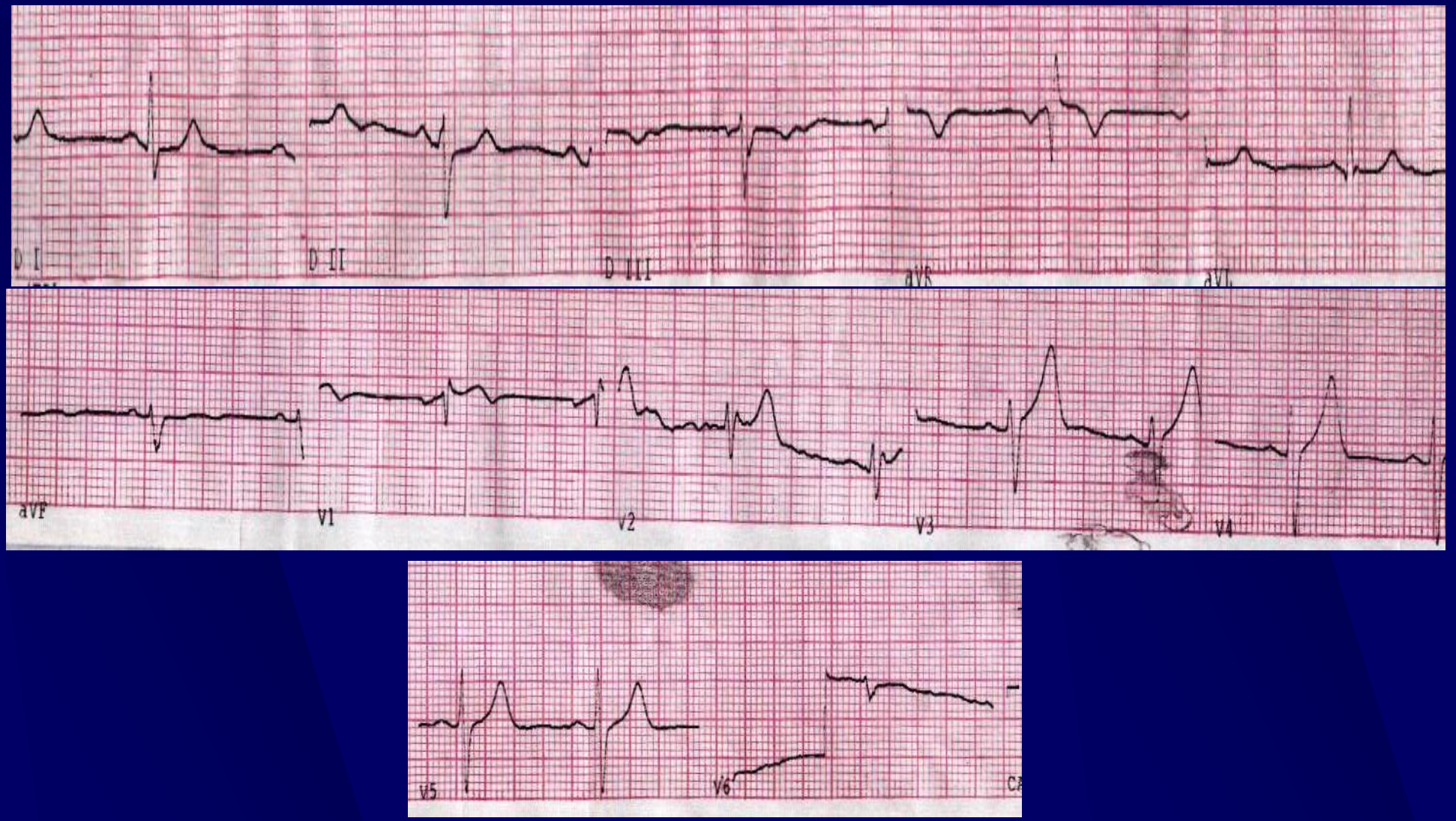
O Mendiz MD.

Medtronic: Consultant
AstraZeneca: Speaker

Case presentation: PCI Complication

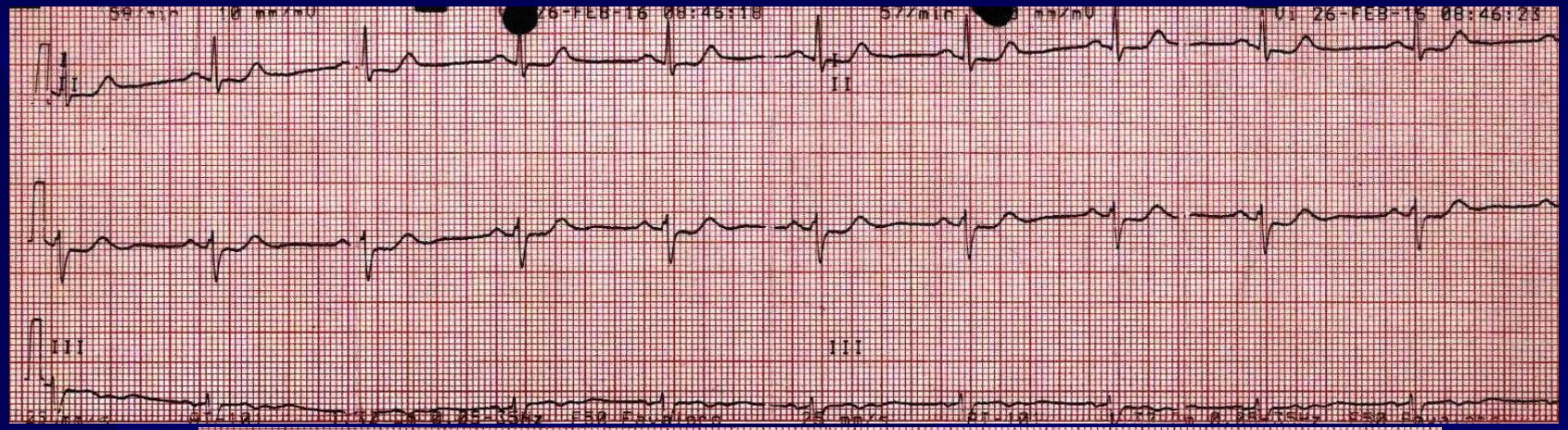
- Male 50 years old, HTA, DLP
- Previous History:
  - 2011: NSTEMI. Angio: RCA ectatic, LM without lesions. LAD severe proximal (bifurcation).
  - PCI LAD-1^{rst} Diag Provisional stenting (EES).
  - Medical Treat: DAP (AAS-Clopidogrel, Nevibolol/hydroclorotiazide, Rosuvastatin.
- Clinical Presentation:
  - STEMI: prolonged chest pain & dyspnea after effort, left arm paresthesia.
  - Self-ECG (Pte's profession; cardiologist), loading dose clopidogrel and Hospital presentation.

1rst ECG at home

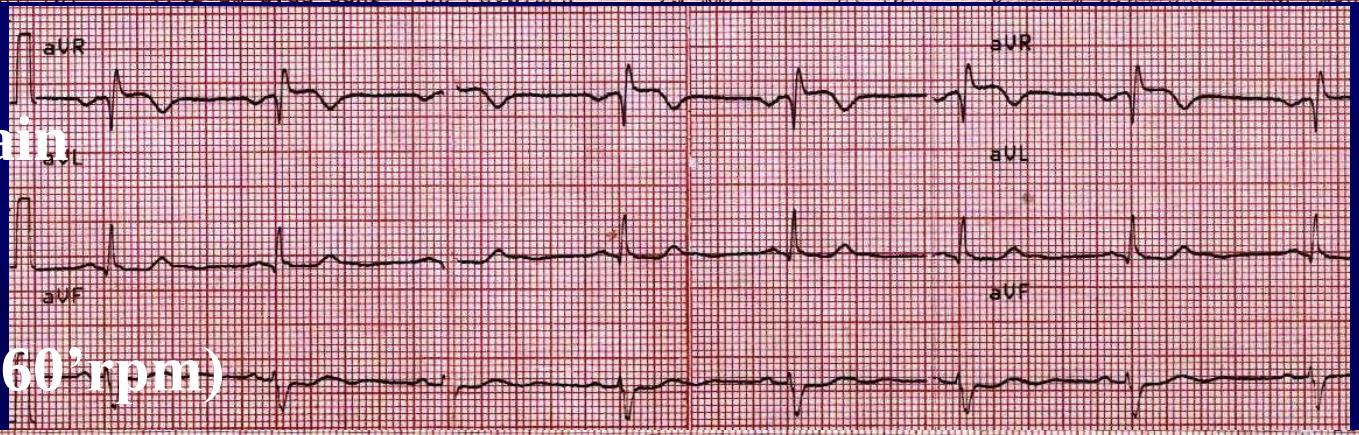


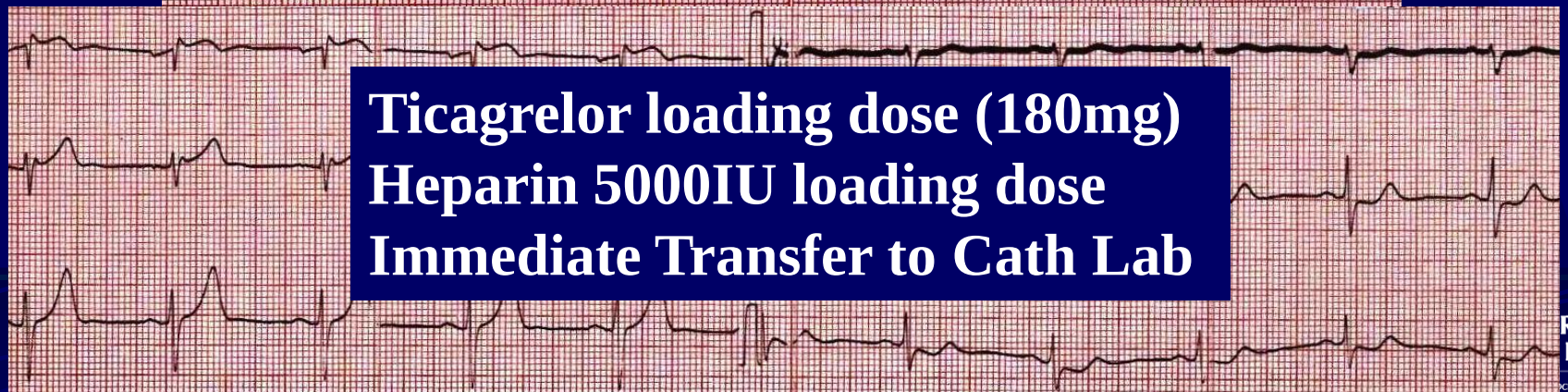
Self-medication: Clopidogrel 150mg & Hospital transfer

Initial Presetning ECG



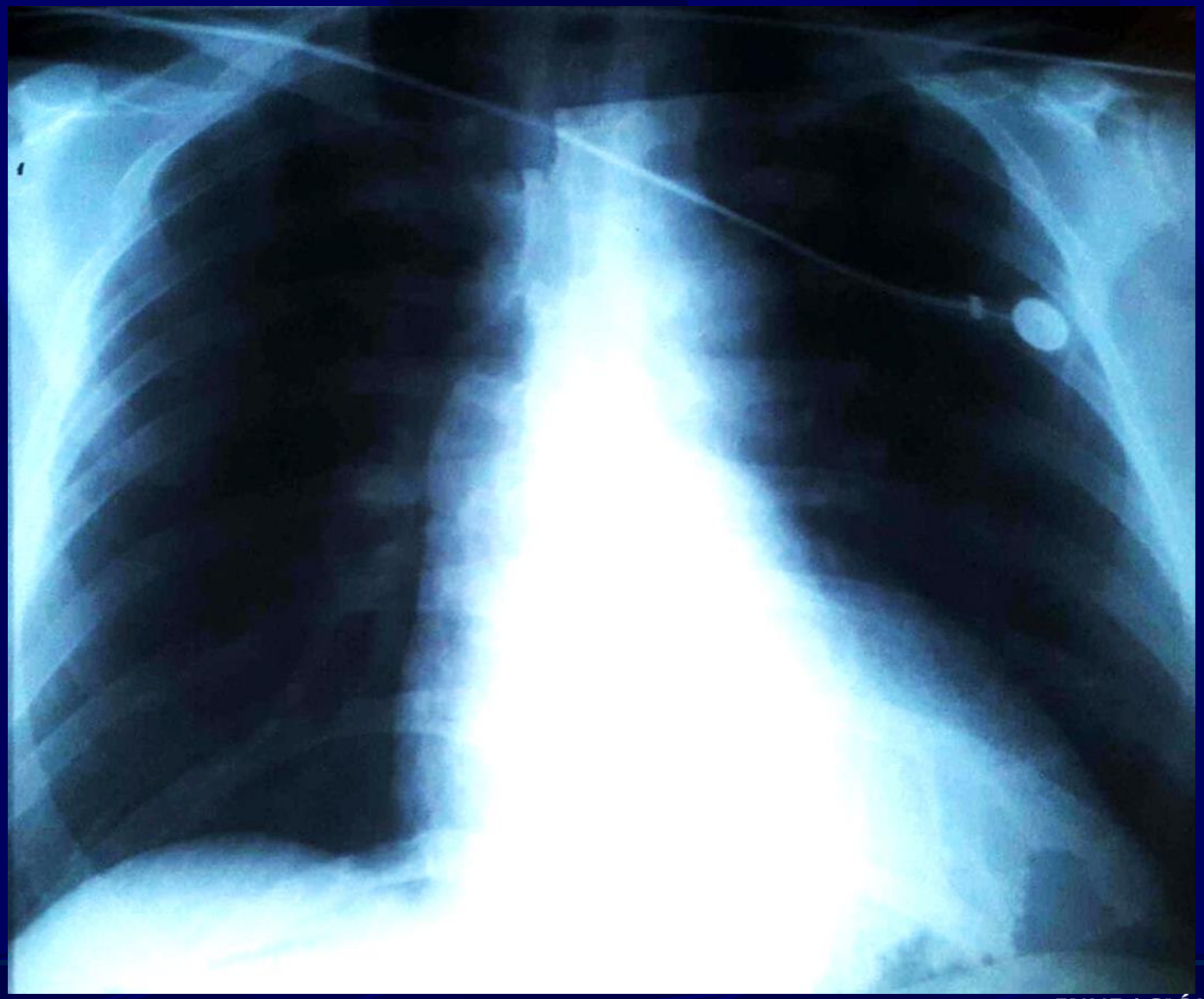
Presentation:
1-hour chest pain
C-TnT= 49.7
KK-I
Stable (130/90-60’rpm)





Ticagrelor loading dose (180mg)
Heparin 5000IU loading dose
Immediate Transfer to Cath Lab

Initial Chest x-Ray

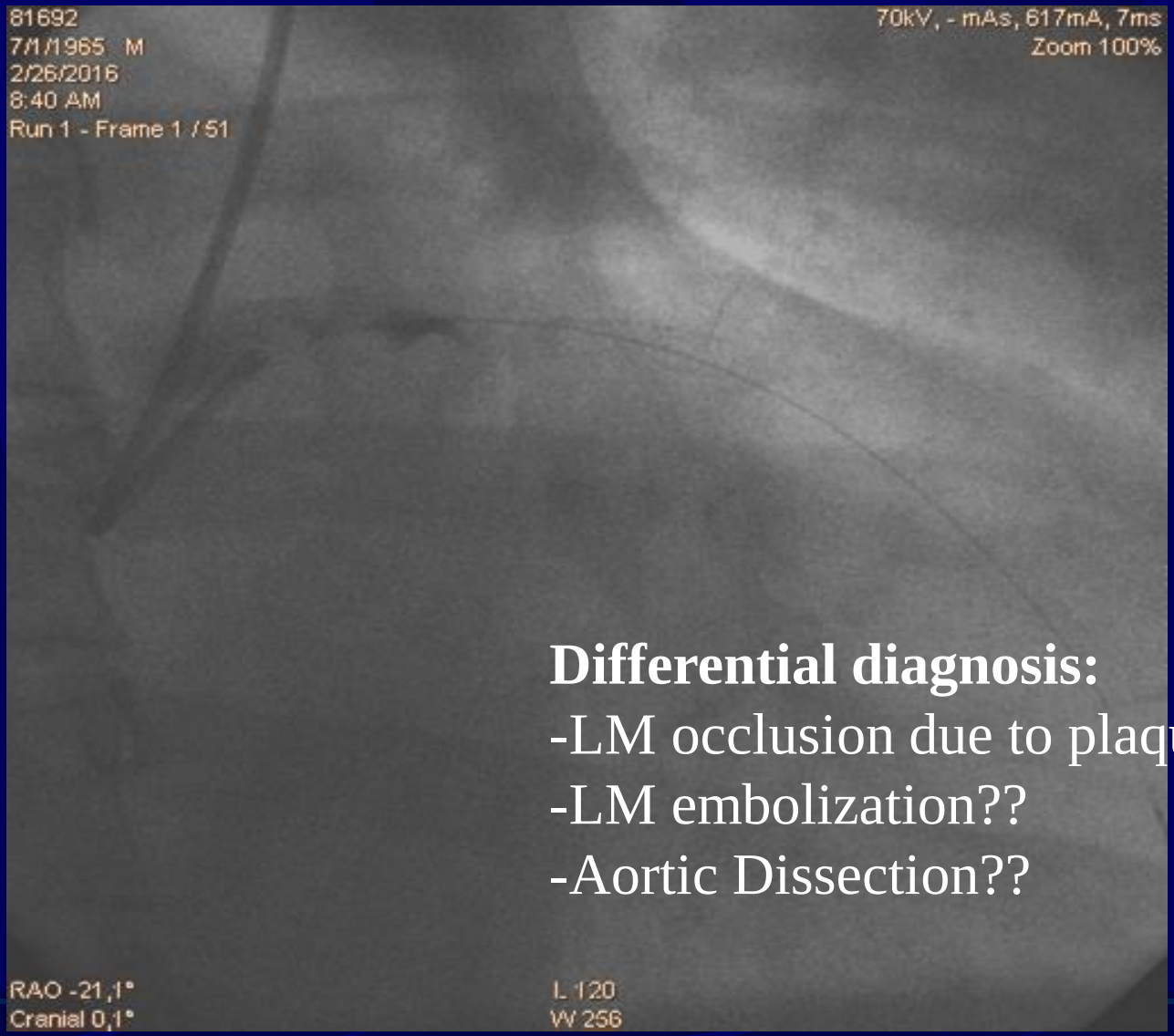


Transferred to Cath Lab

- While preparation Pte suffered:

- Chest Pain
- Bradycardia (30x’)
- Hypotension.

First Angio Shot



Differential diagnosis:

-LM occlusion due to plaque rupture??

-LM embolization??

-Aortic Dissection??

First Fluoro image was not recorded by the Fellow)

Primary PCI

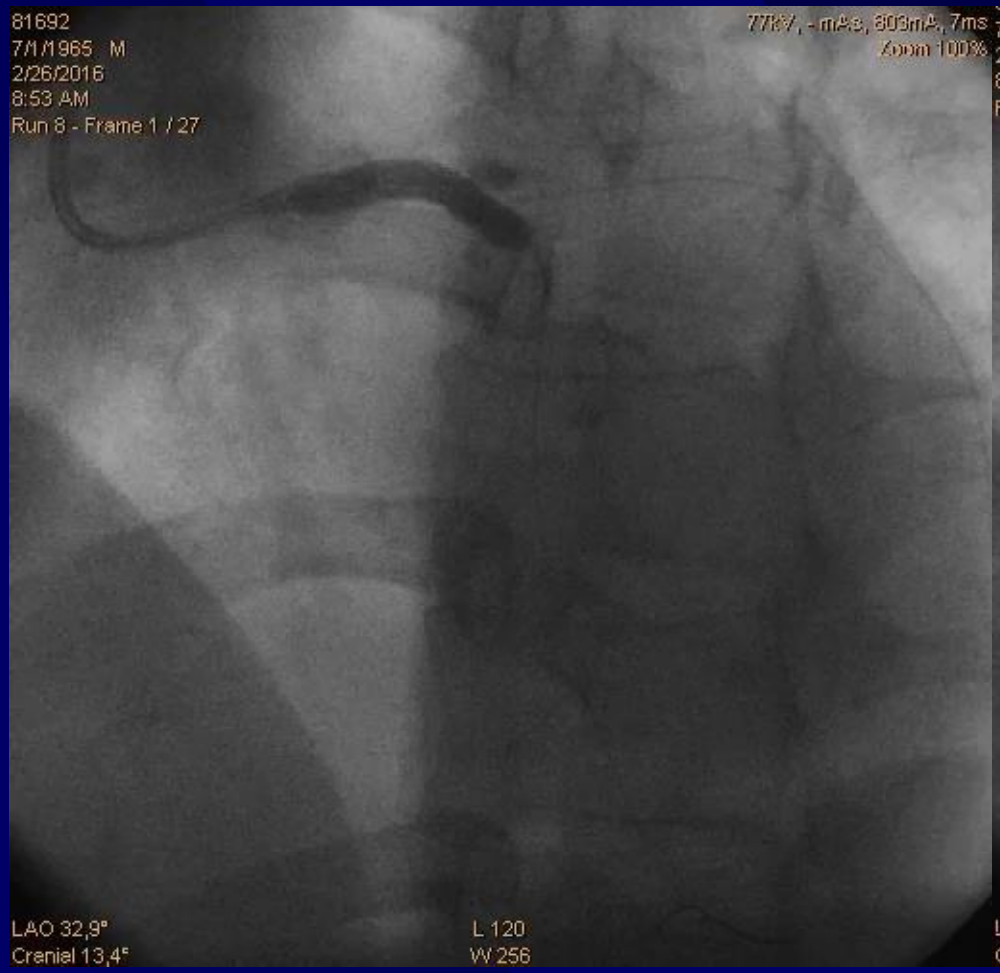

81692
7/1/1965 M
2/26/2016
8:43 AM
Run 2 - Frame 1 / 36
68kV, - mAs, 540mA, 7i
Zoom 10(
RAO -21,1°
Cranial 0,1°
L 120
W 256

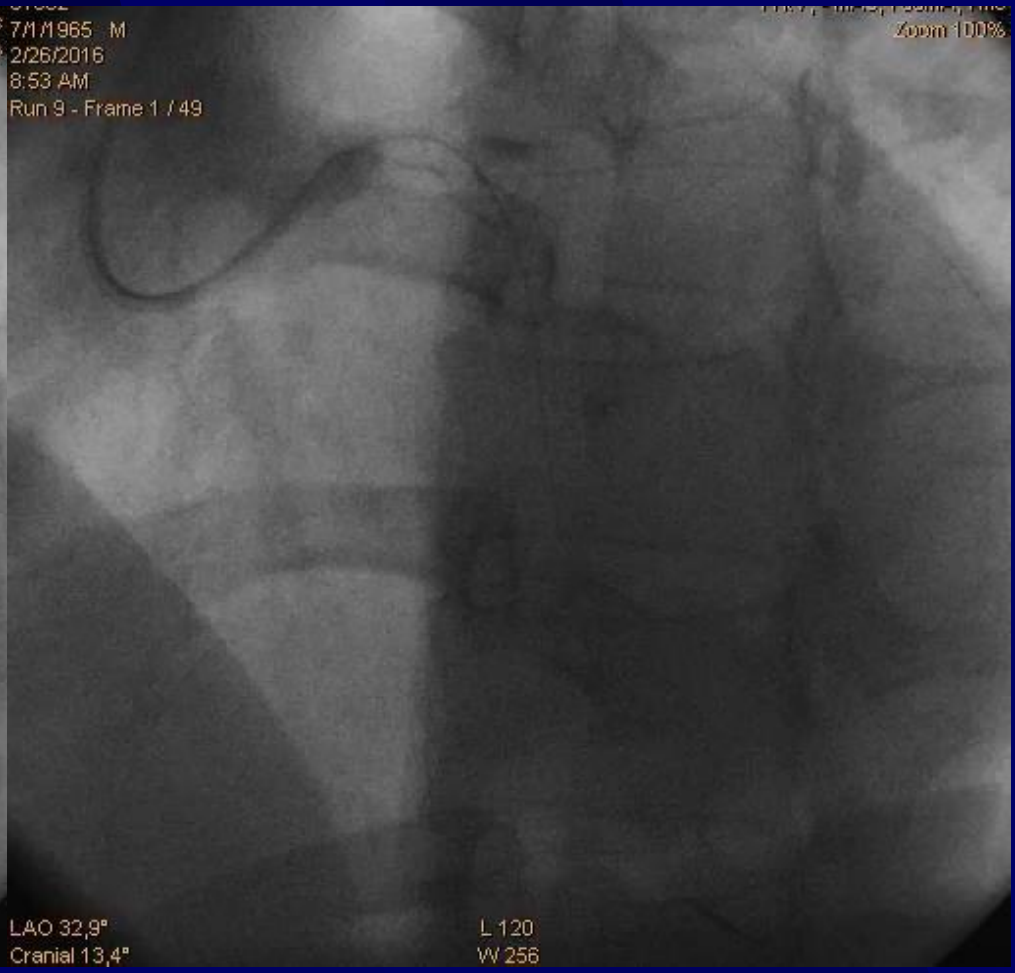

81692
7/1/1965 M
2/26/2016
8:46 AM
Run 4 - Frame 1 / 53
72kV, - mAs, 640mA, 7ms
Zoom 100%
RAO -21,1°
Cranial 0,1°
L 120
W 256

Primary PCI


81692
7/1/1965 M
2/26/2016
8:46 AM
Run 5 - Frame 1 / 39
77kV, - mAs, 805mA, 7ms
Zoom 100%
RAO -21,1°
Caudal -25,2°
L 120
W 256
81692
7/1/1965 M
2/26/2016
8:46 AM
Run 6 - Frame 1 / 42
77kV, - mAs, 785mA, 7ms
Zoom 100%
RAO -21,1°
Caudal -25,2°
L 120
W 256

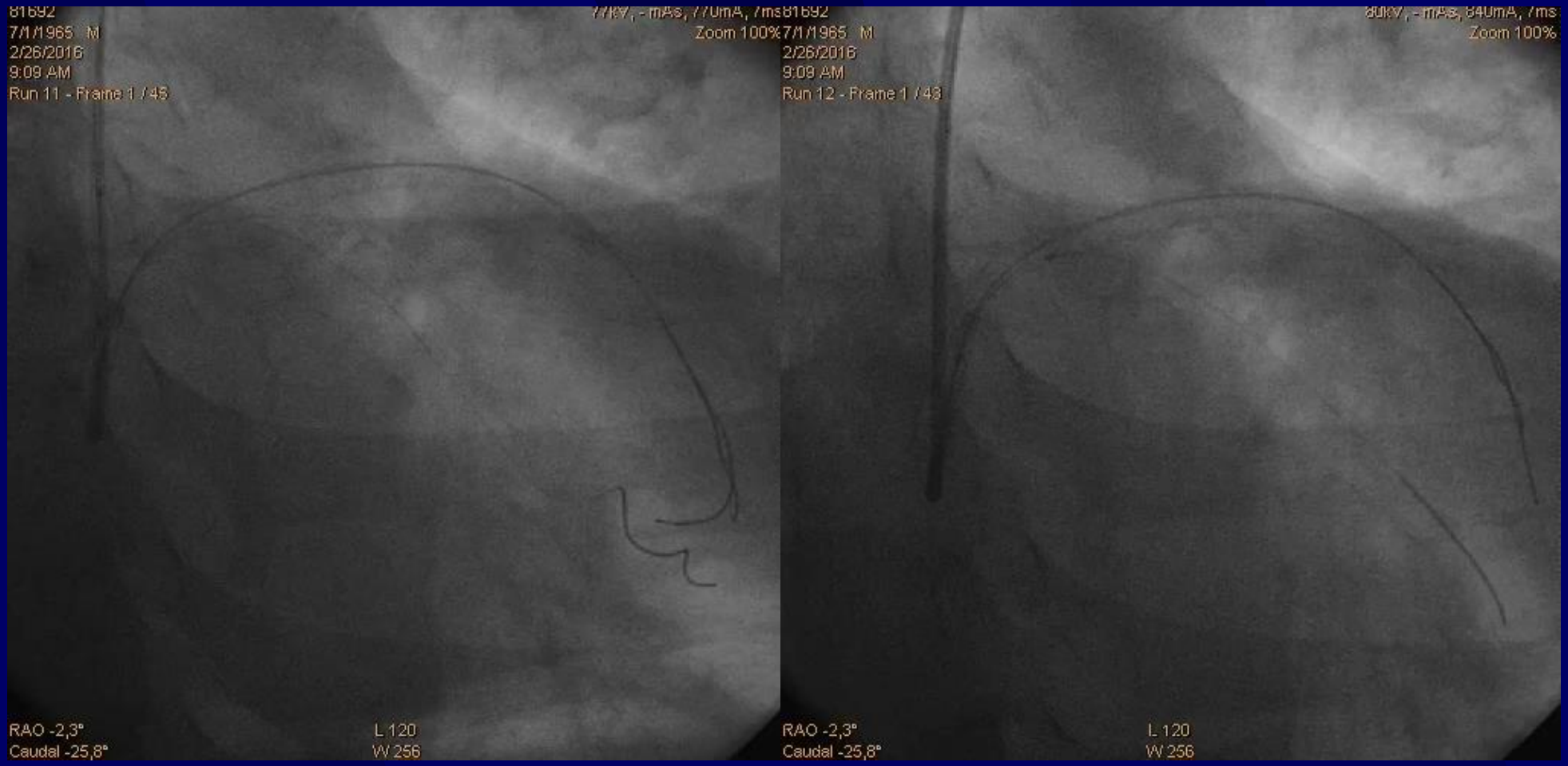
Primary PCI



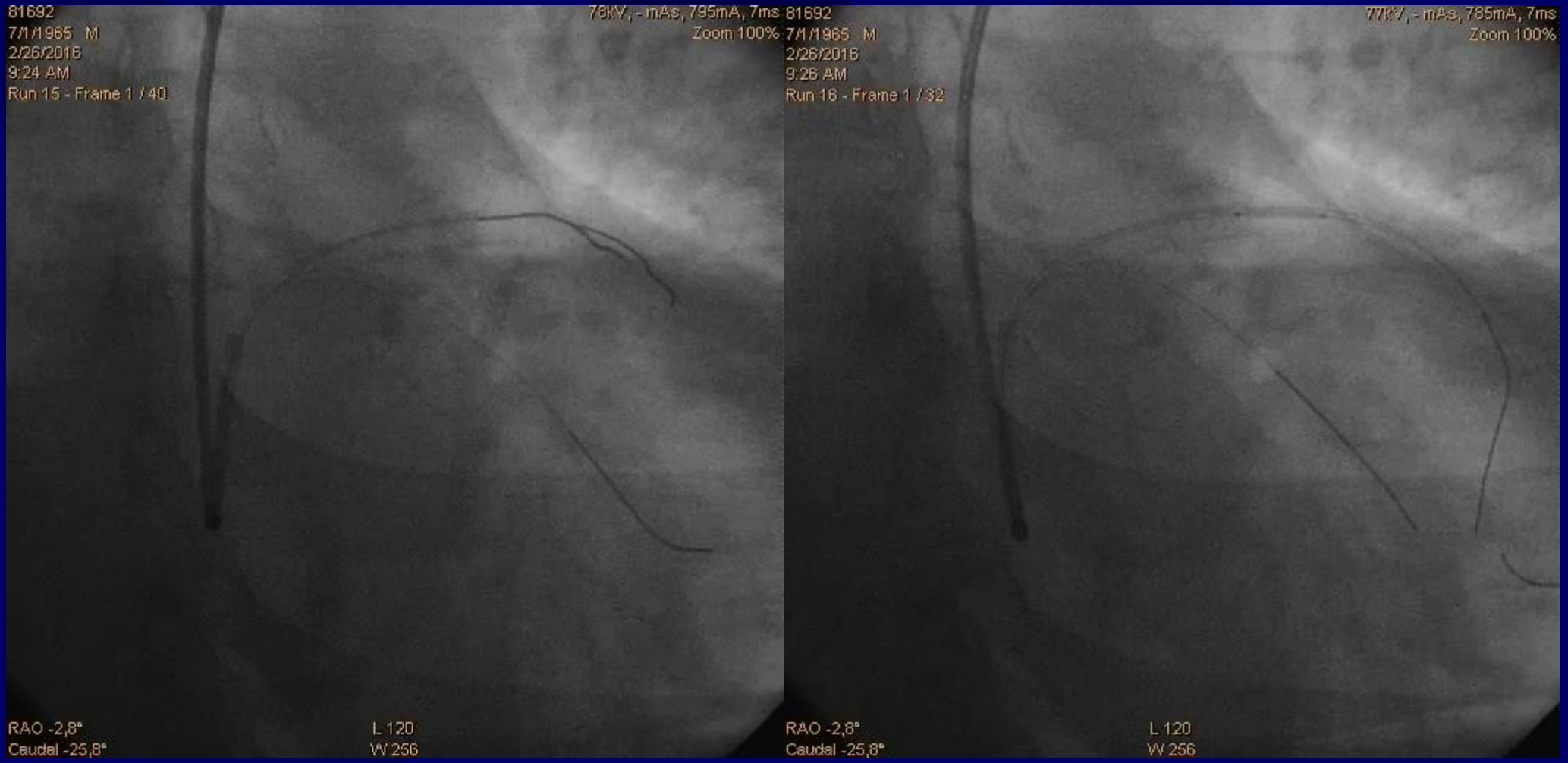


LM to LAD stenting protruding into the aortic root

Primary PCI

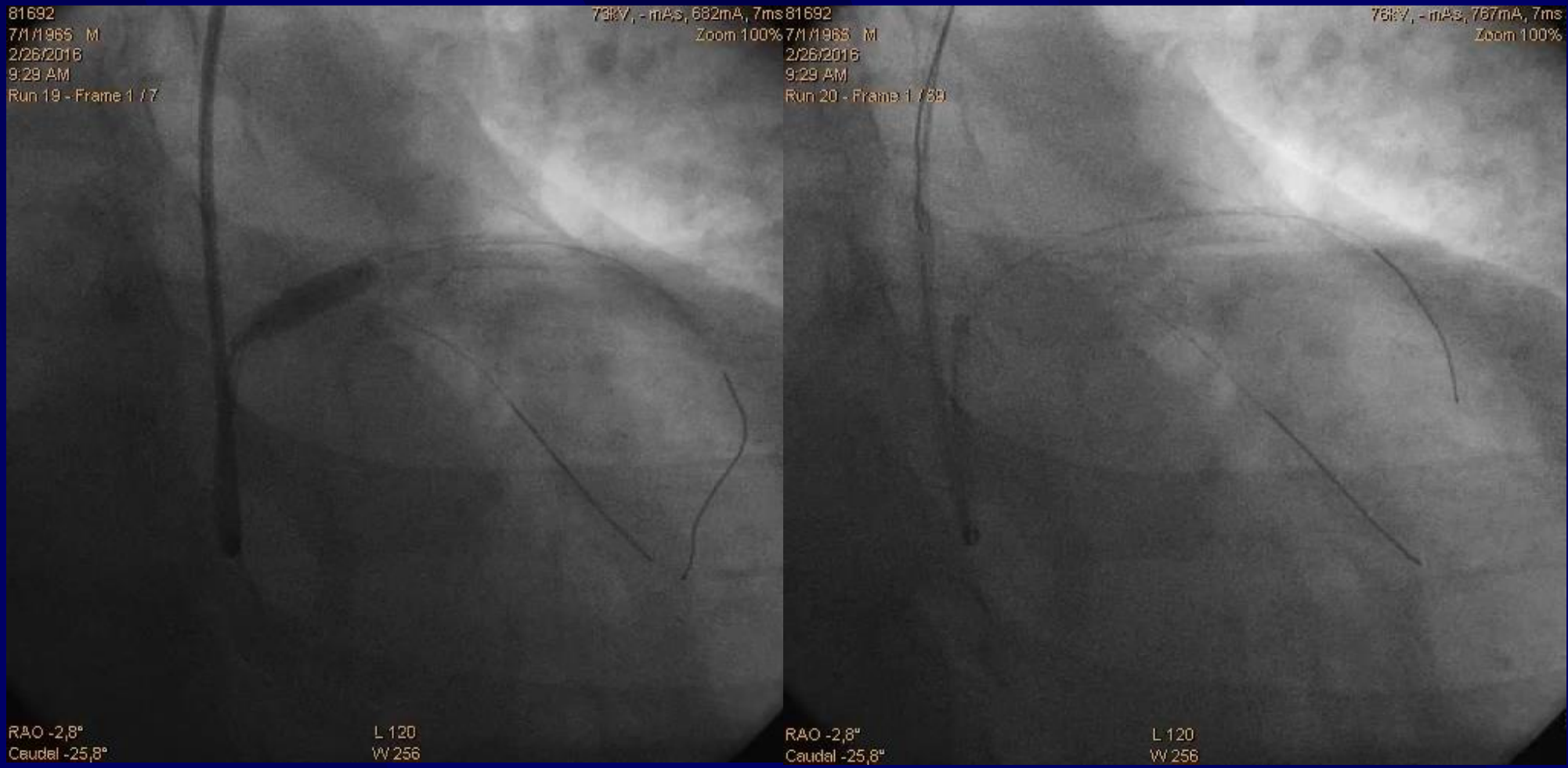

81692
7/1/1965 M
2/26/2016
9:09 AM
Run 11 - Frame 1 / 45
Zoom 100%
RAO -2,3°
Caudal -25,8°
L 120
W 256
7/1/1965 M
2/26/2016
9:09 AM
Run 12 - Frame 1 / 43
Zoom 100%
RAO -2,3°
Caudal -25,8°
L 120
W 256

Primary PCI



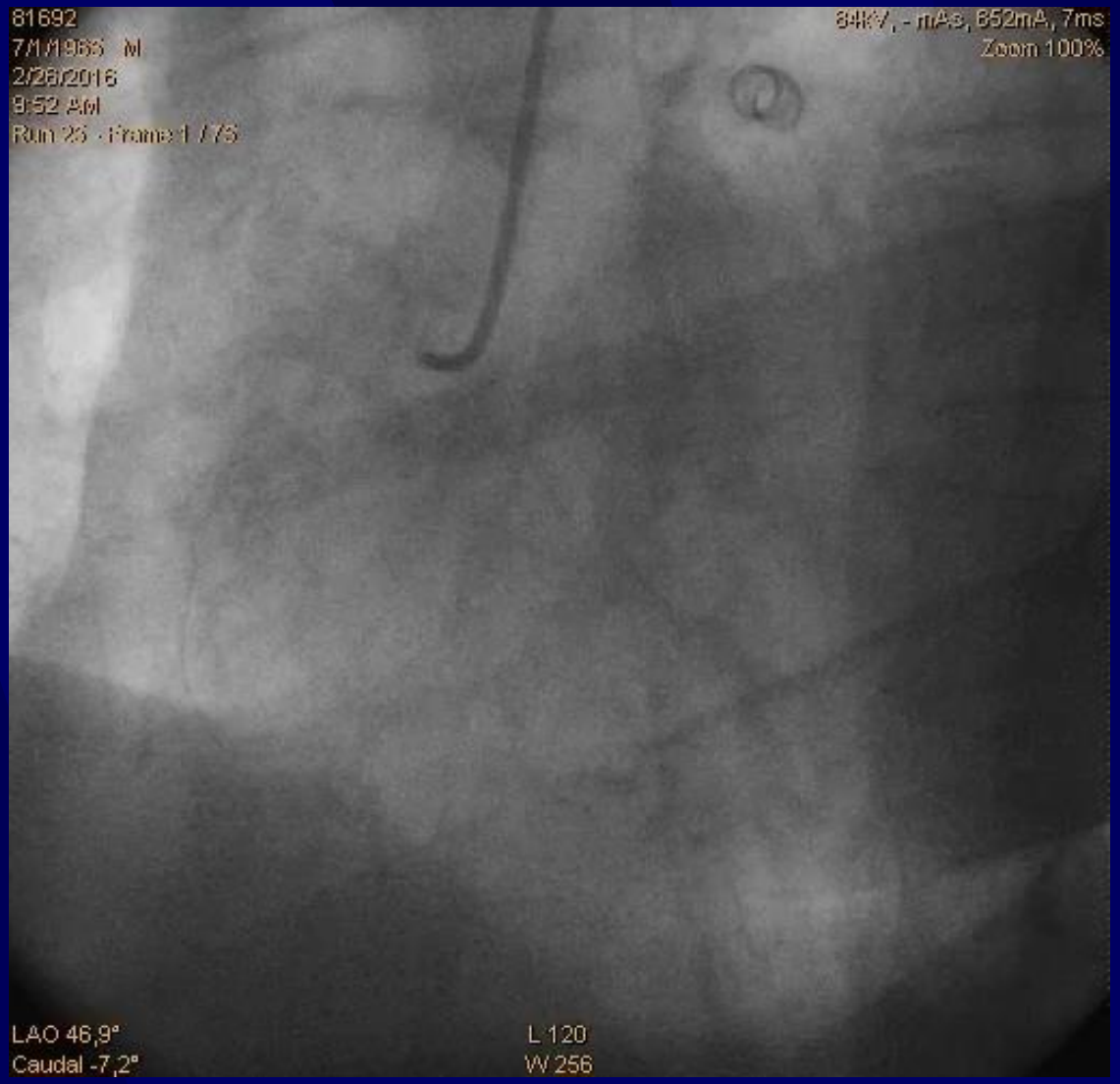
Middle LAD stenting

Primary PCI

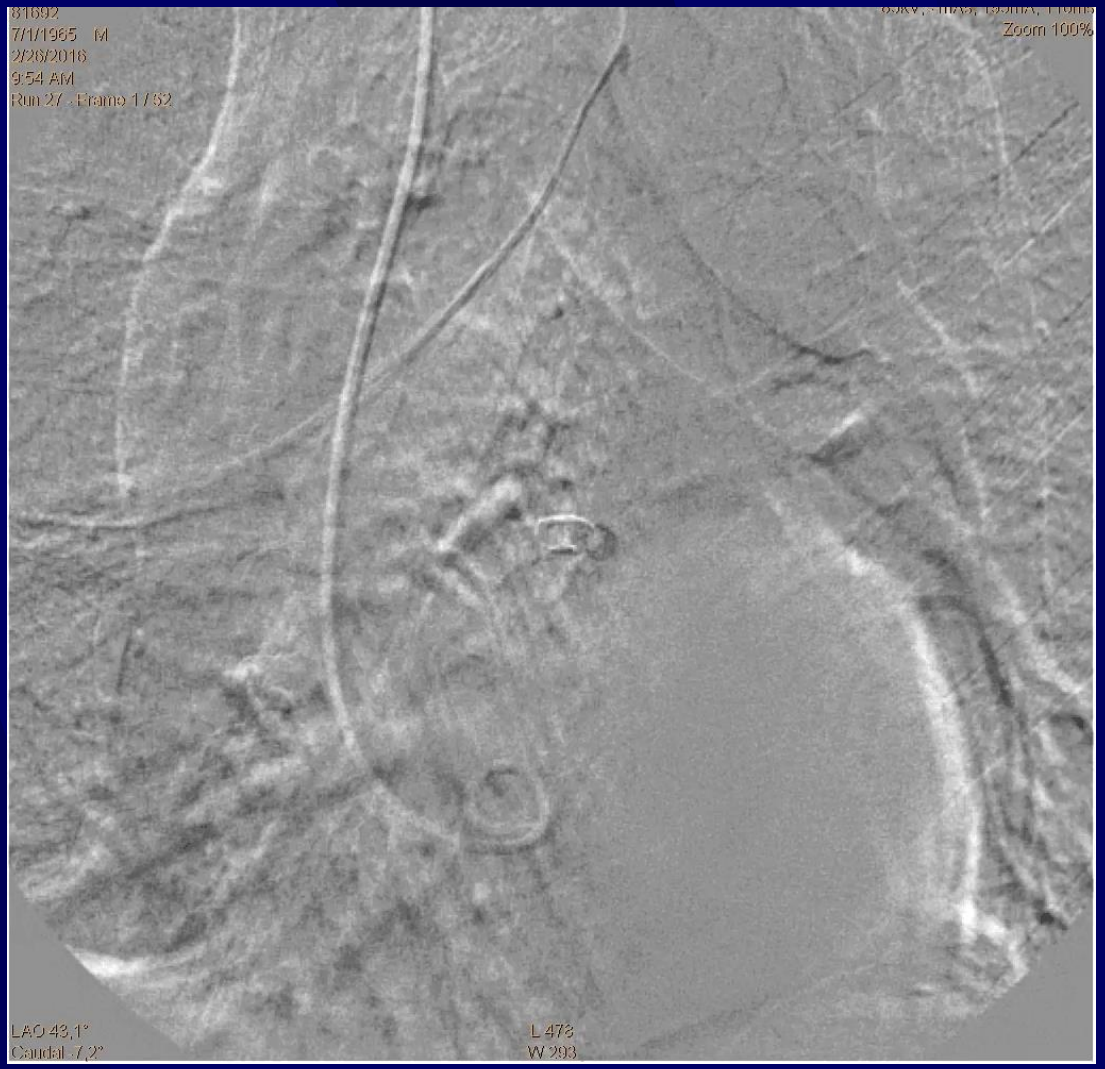

81692
7/1/1965 M
2/26/2016
9:29 AM
Run 19 - Frame 1 / 7
73kV, - mAs, 682mA, 7ms
Zoom 100%
RAO -2,8°
Caudal -25,8°
L 120
W 256
81692
7/1/1965 M
2/26/2016
9:29 AM
Run 20 - Frame 1 / 38
76kV, - mAs, 767mA, 7ms
Zoom 100%
RAO -2,8°
Caudal -25,8°
L 120
W 256

Primary PCI: Final LCA angio

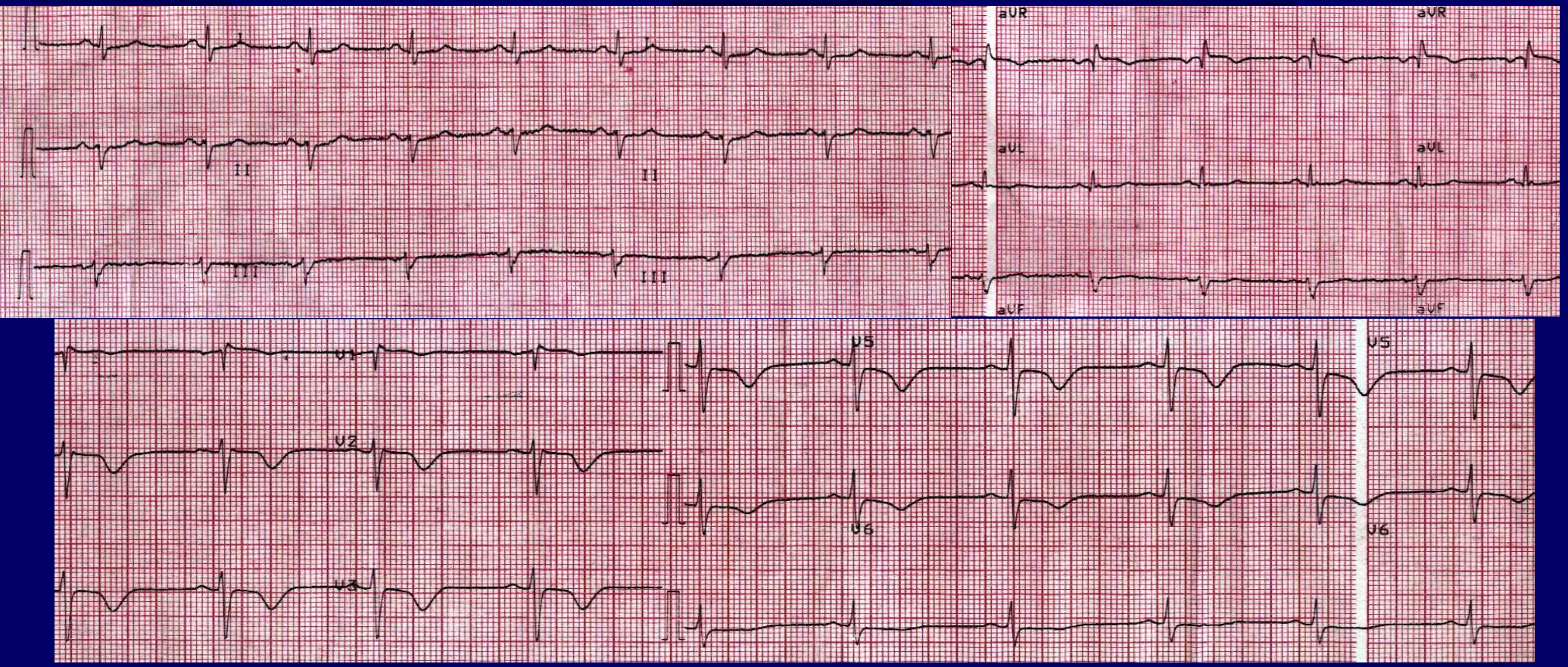
Final RCA angio



Final aortography

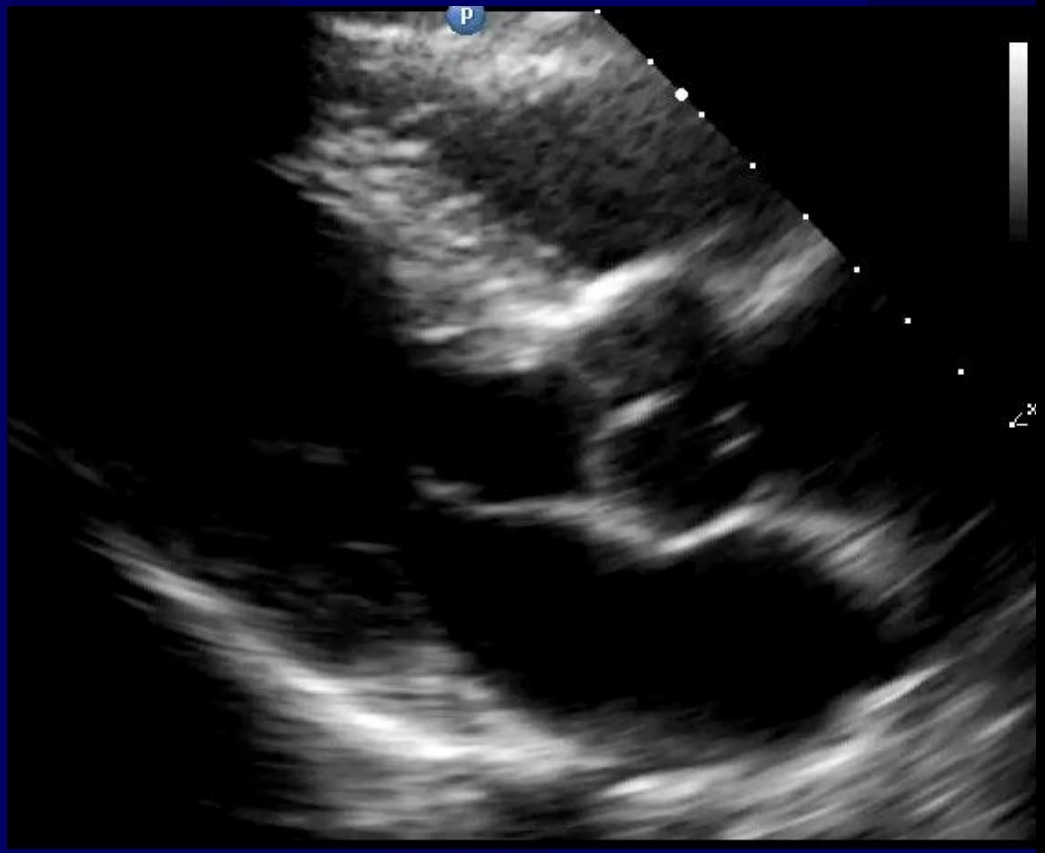


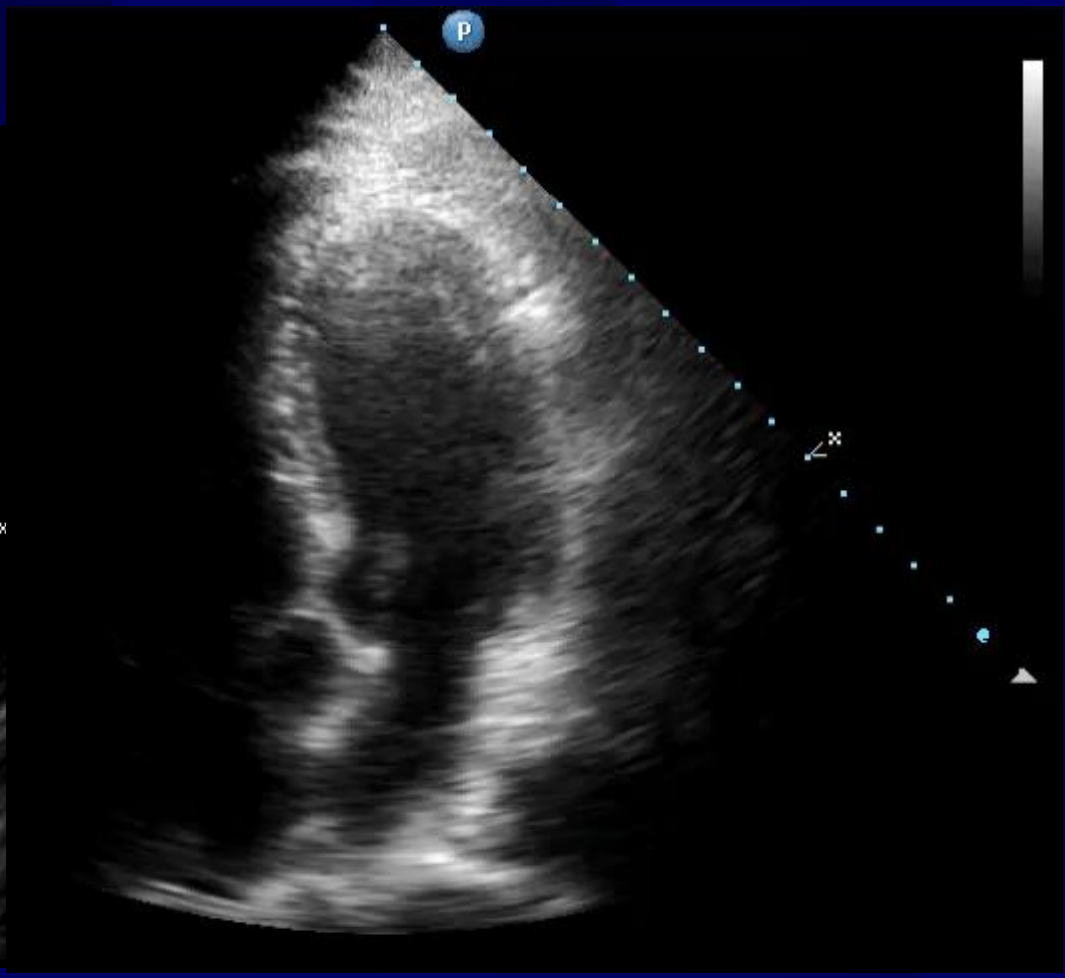
Post PCI ECG



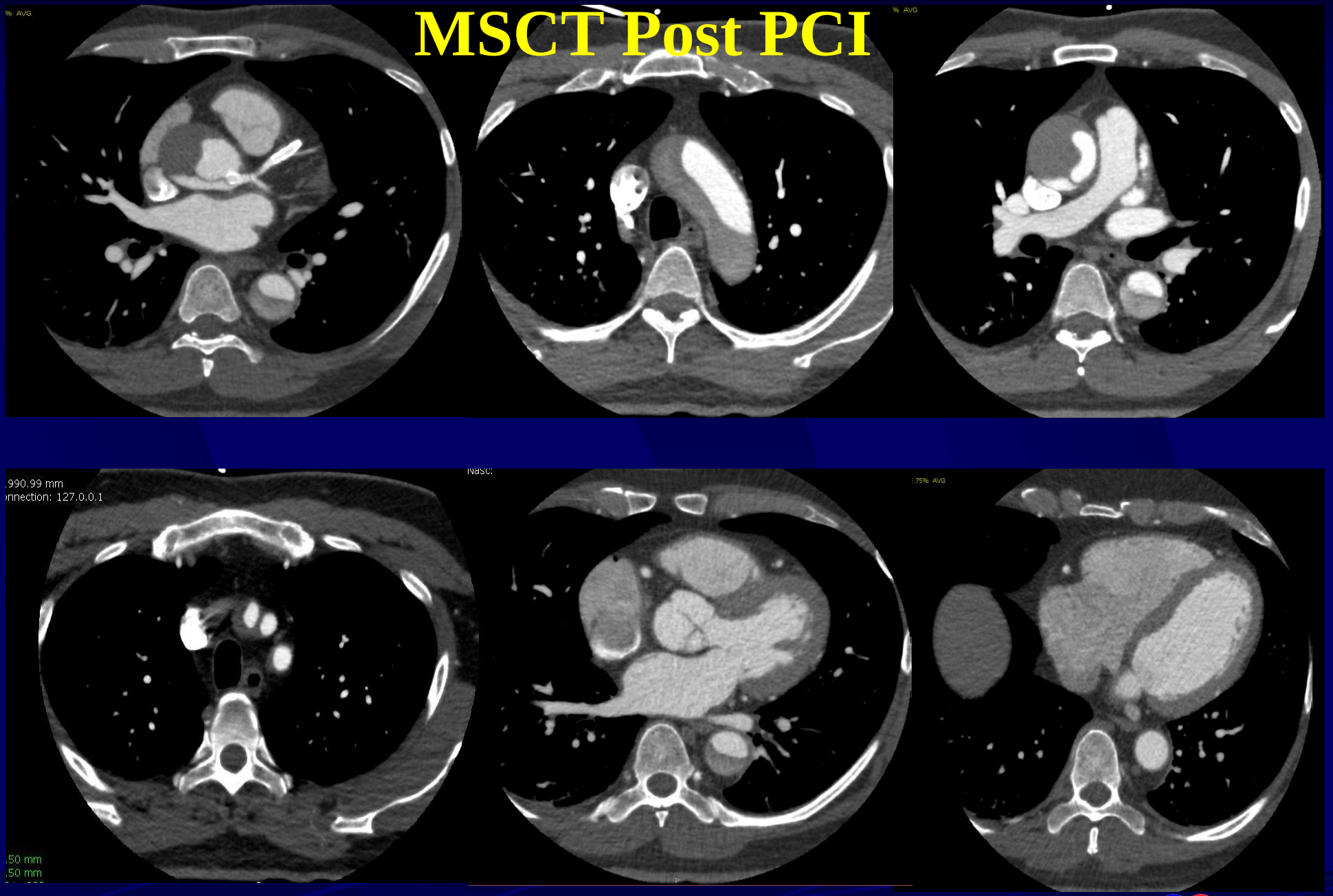
Pte: Stable, asymptomatic

Echocardiogram Post PCI





MSCT Post PCI



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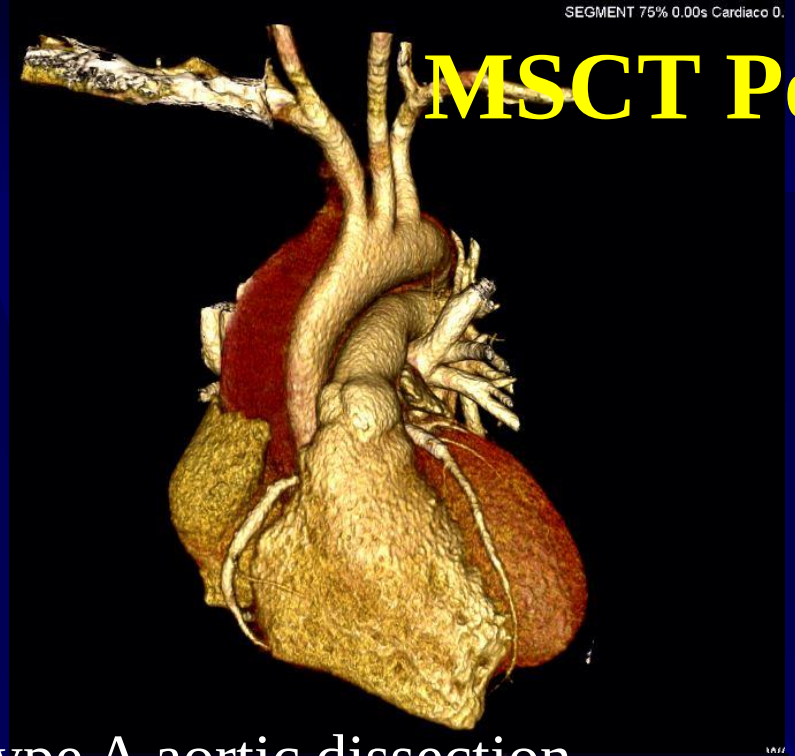
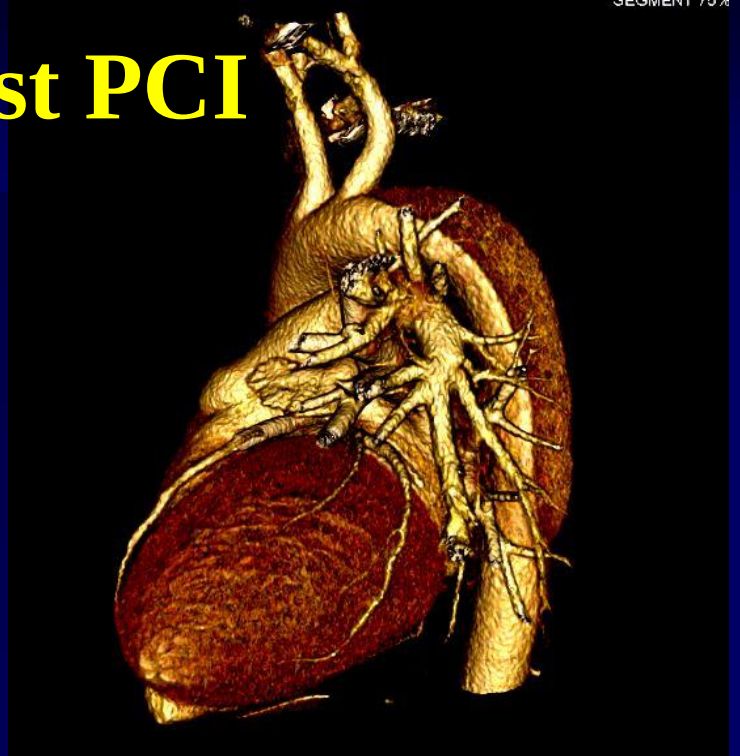
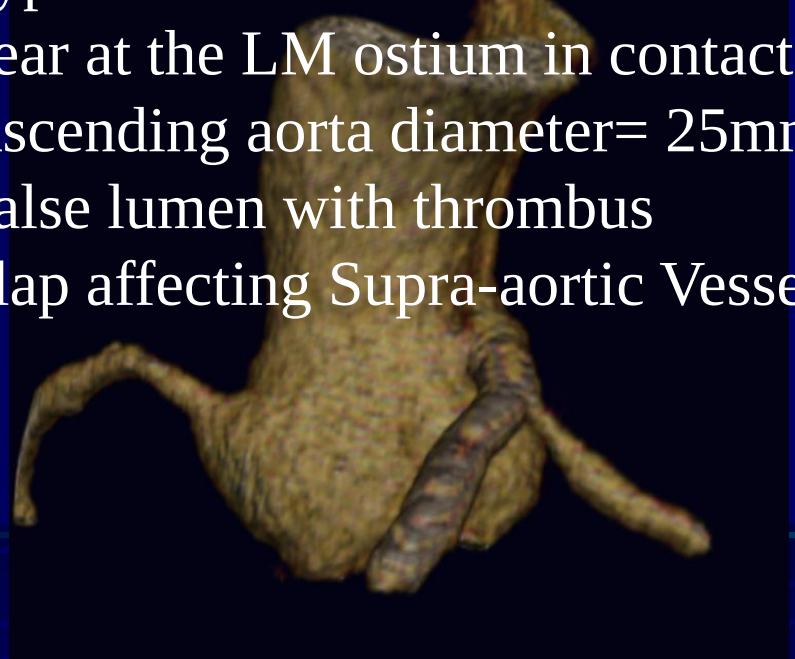
MSCT Post PCI





Type A aortic dissection.
Tear at the LM ostium in contact with LM Stent
Ascending aorta diameter= 25mm.
False lumen with thrombus
Flap affecting Supra-aortic Vessels ostium



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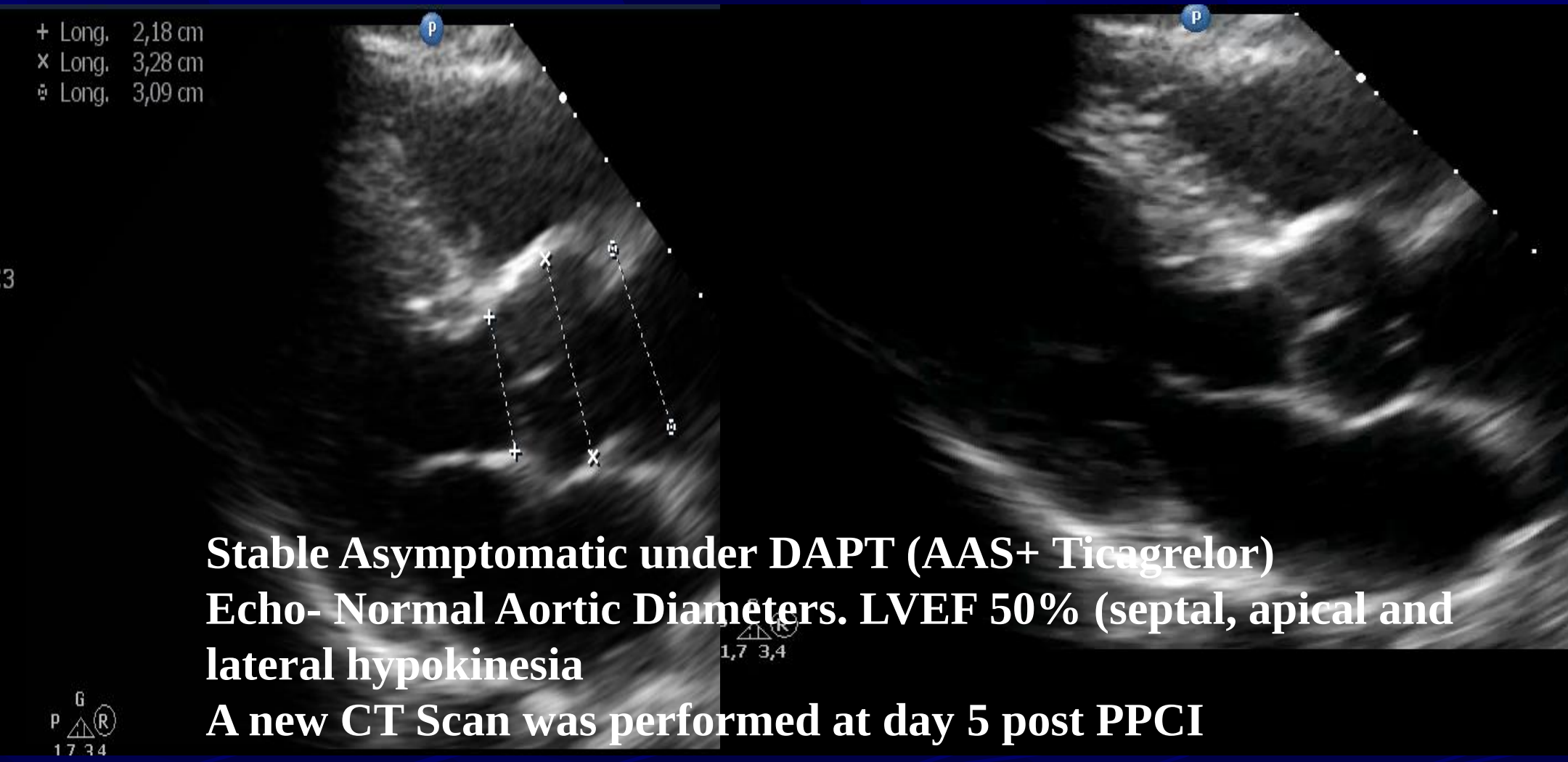
Pte Summary

- STEMI.
- LM Occlusion successfully treated with PCI.
- Ascending aorta dissection

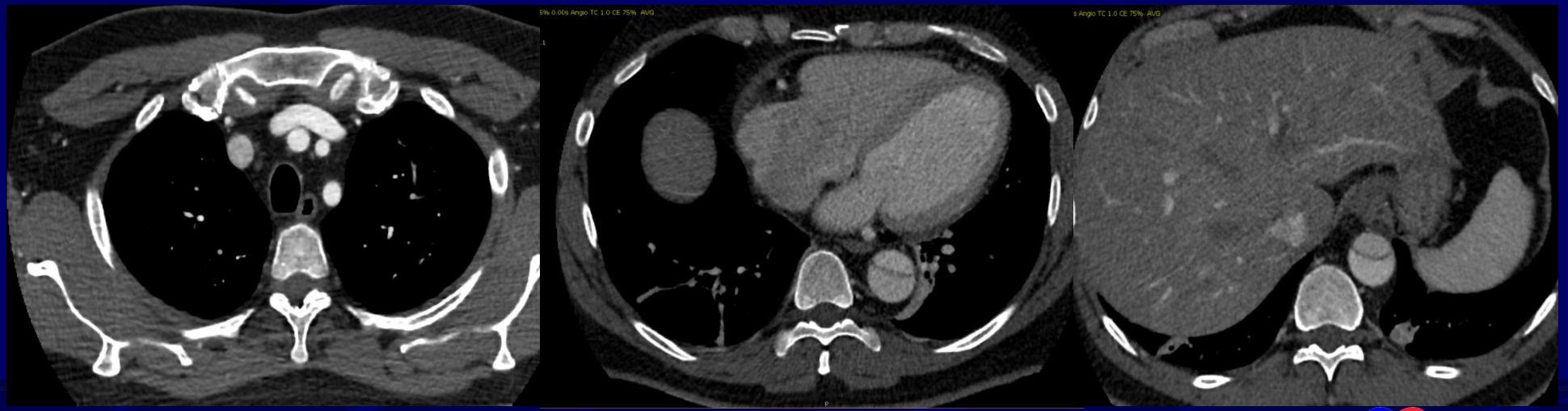
What's next?

Echocardiogram; 3er day Post PCI

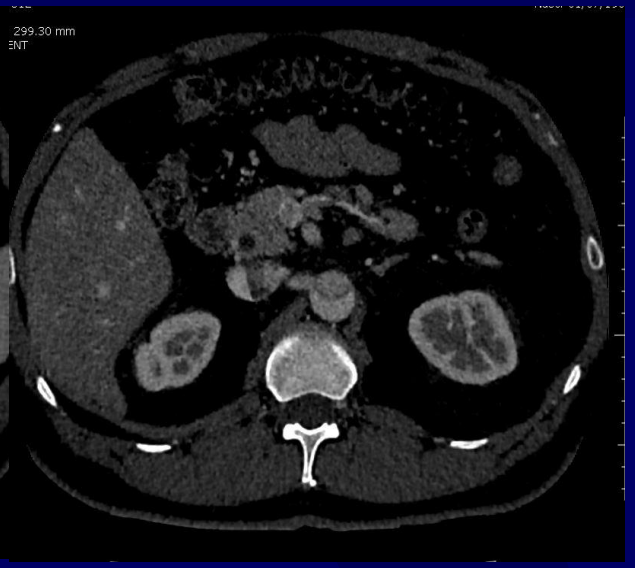


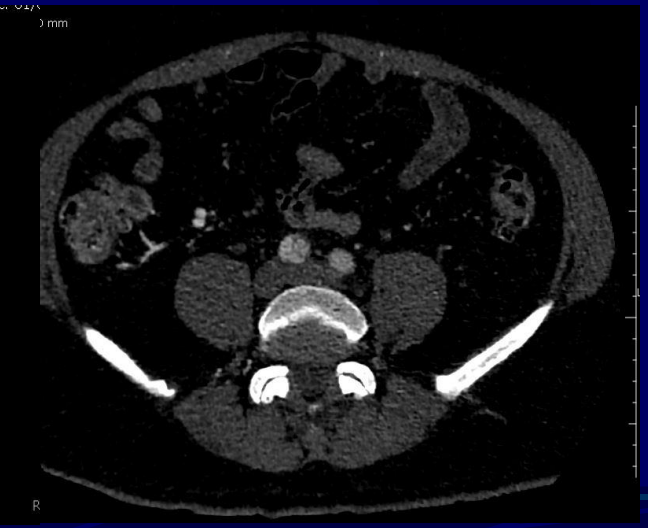
Stable Asymptomatic under DAPT (AAS+ Ticagrelor)
Echo- Normal Aortic Diameters. LVEF 50% (septal, apical and lateral hypokinesia
A new CT Scan was performed at day 5 post PPCI

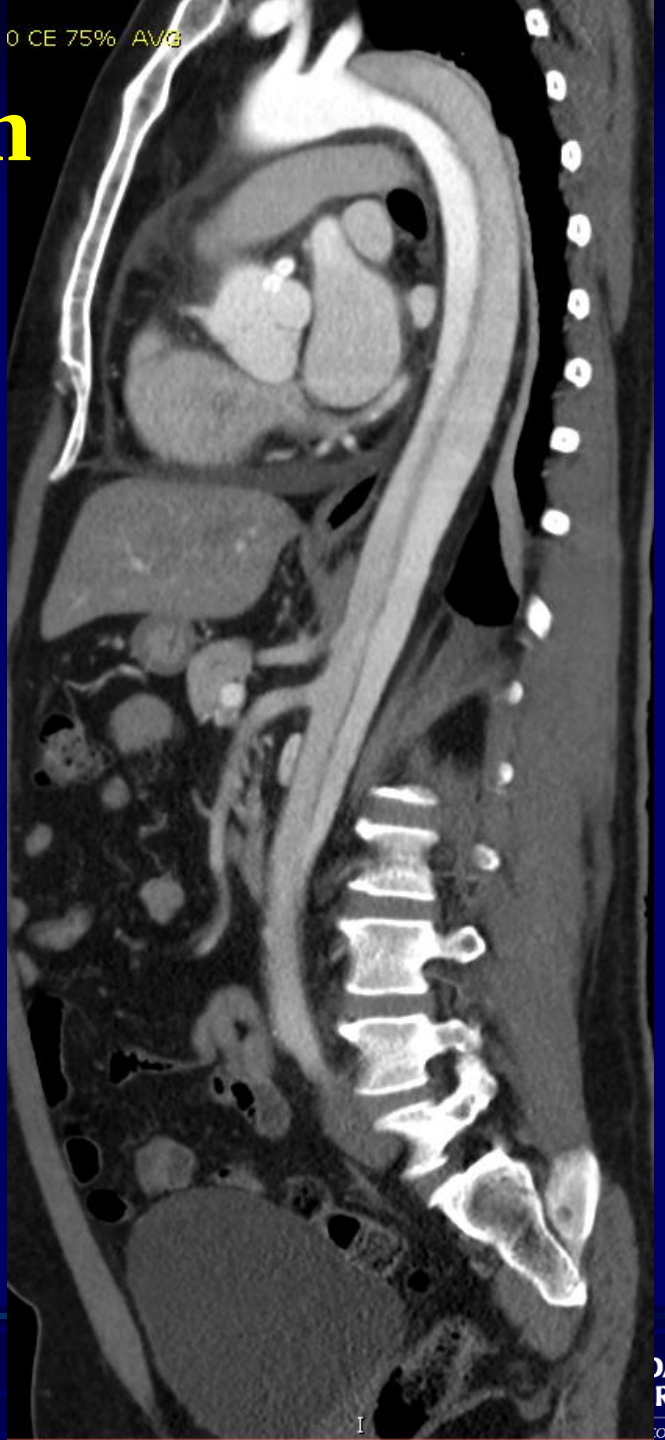
2nd MSCT Scan



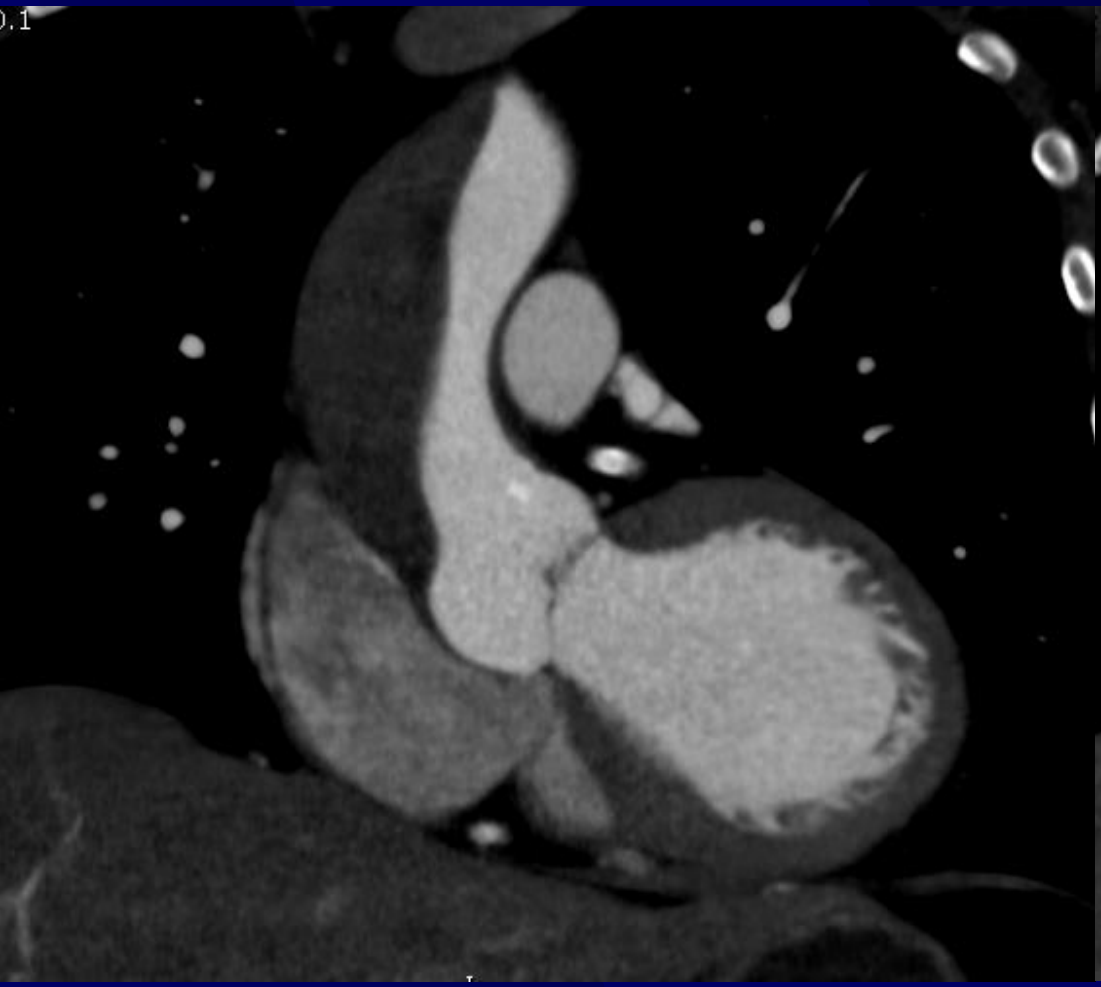
2nd MSCT Scan



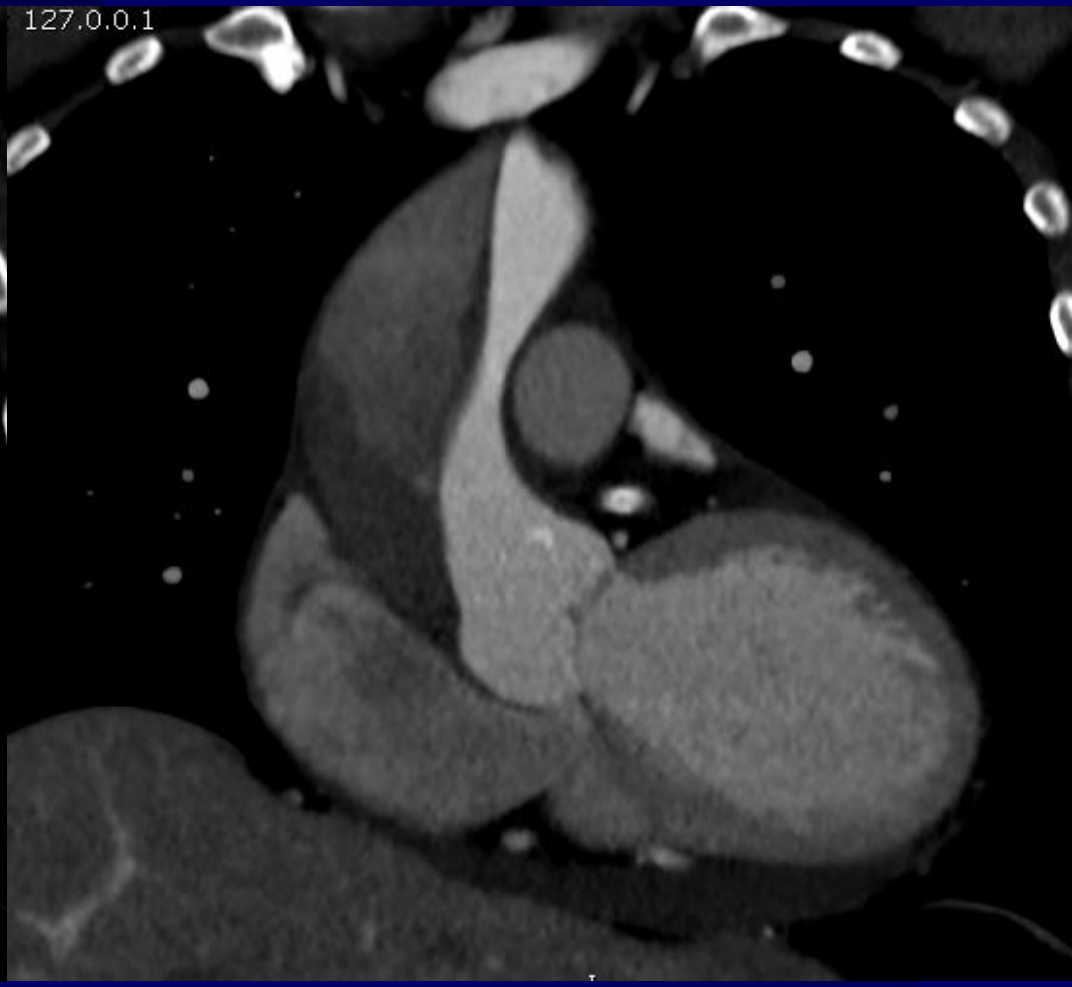




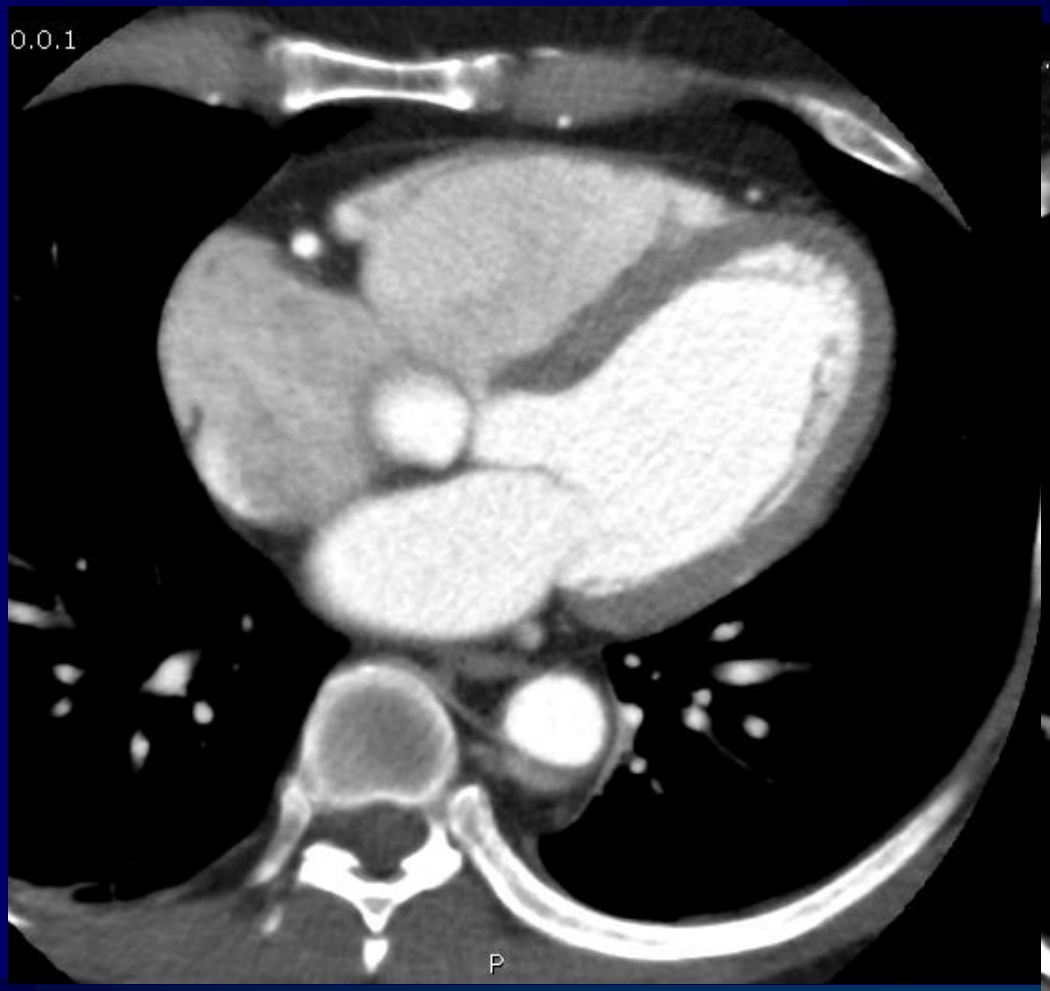
First MSCT Scan



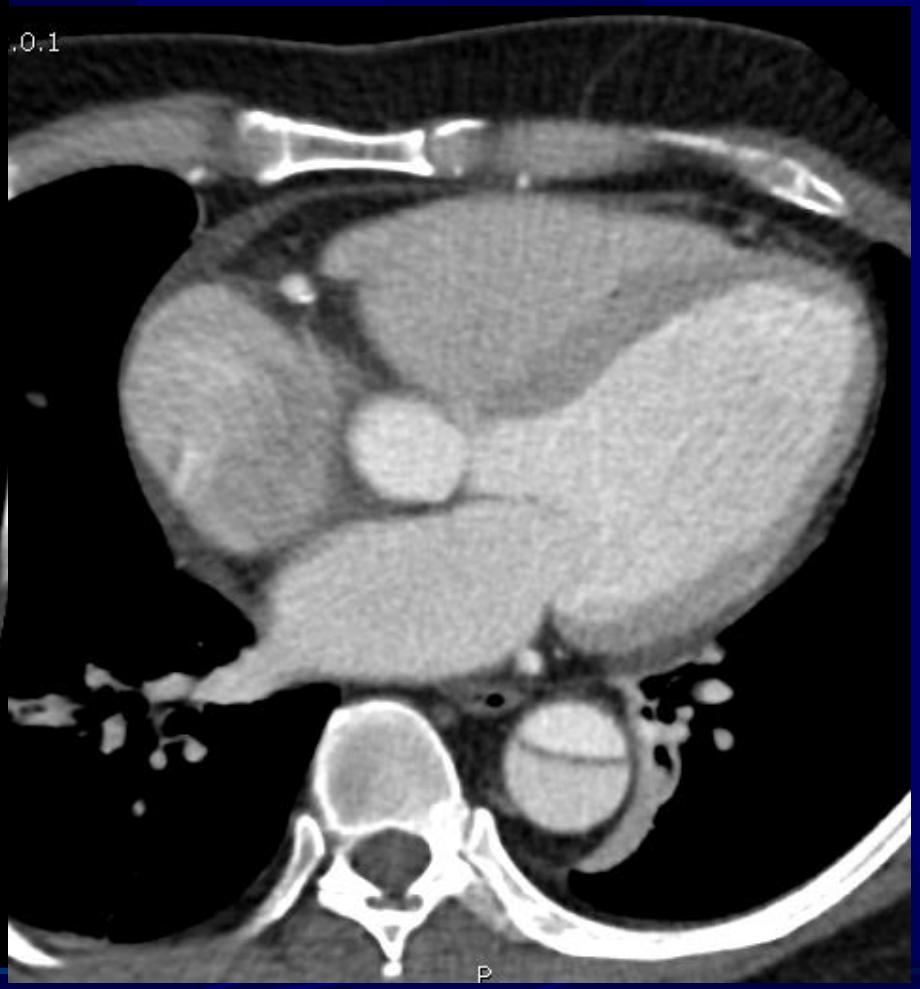
Second MSCT Scan



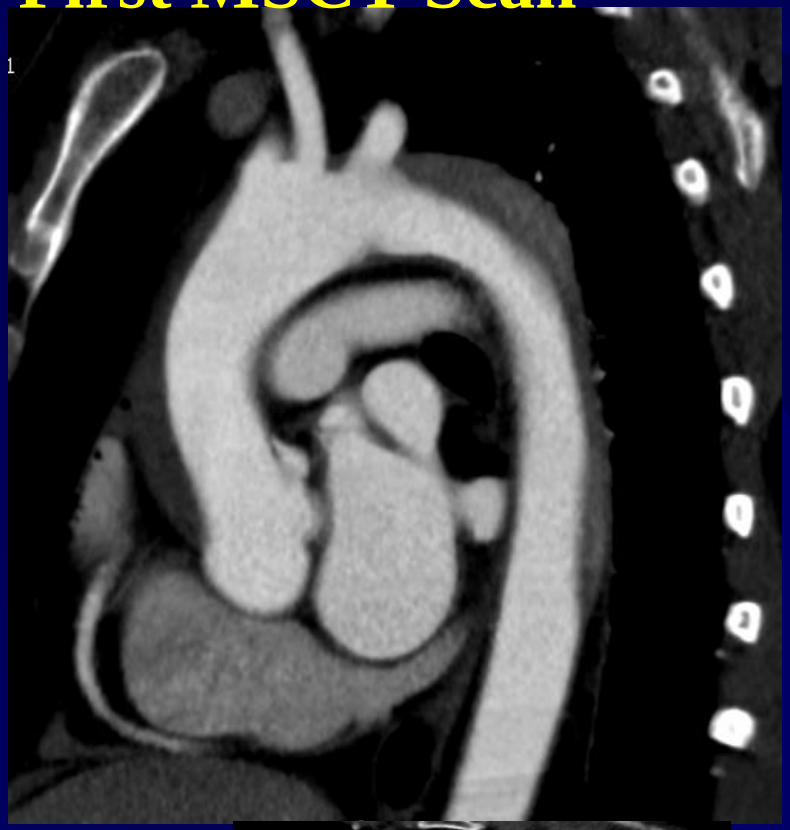
First MSCT Scan



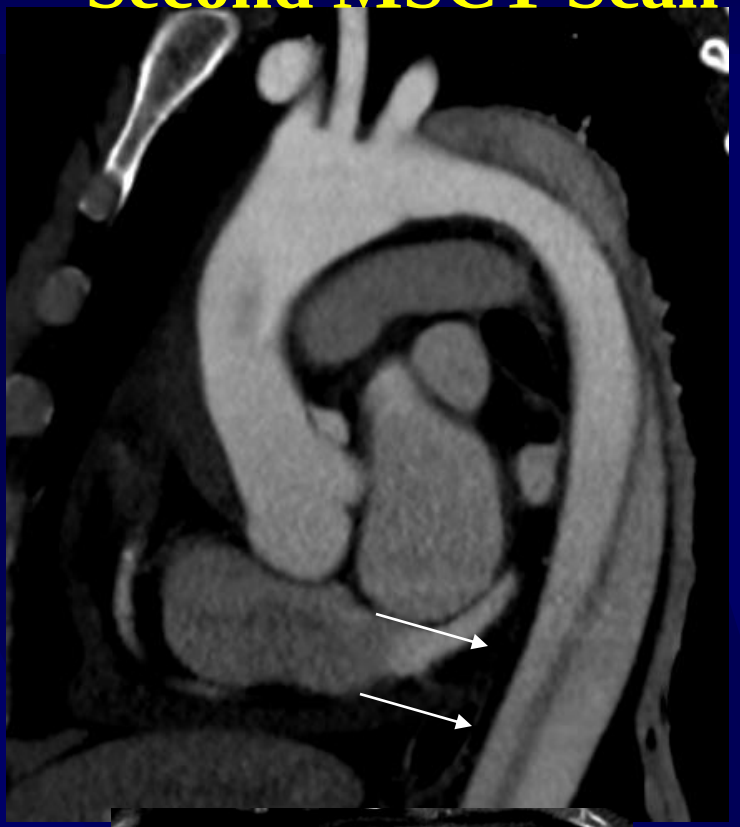
Second MSCT Scan

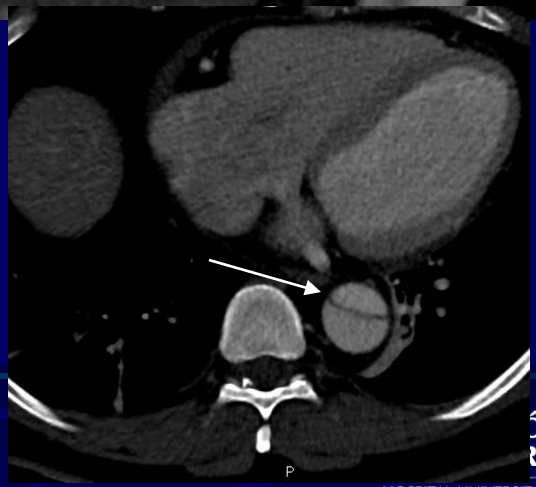


First MSCT Scan



Second MSCT Scan





Clinical Situation

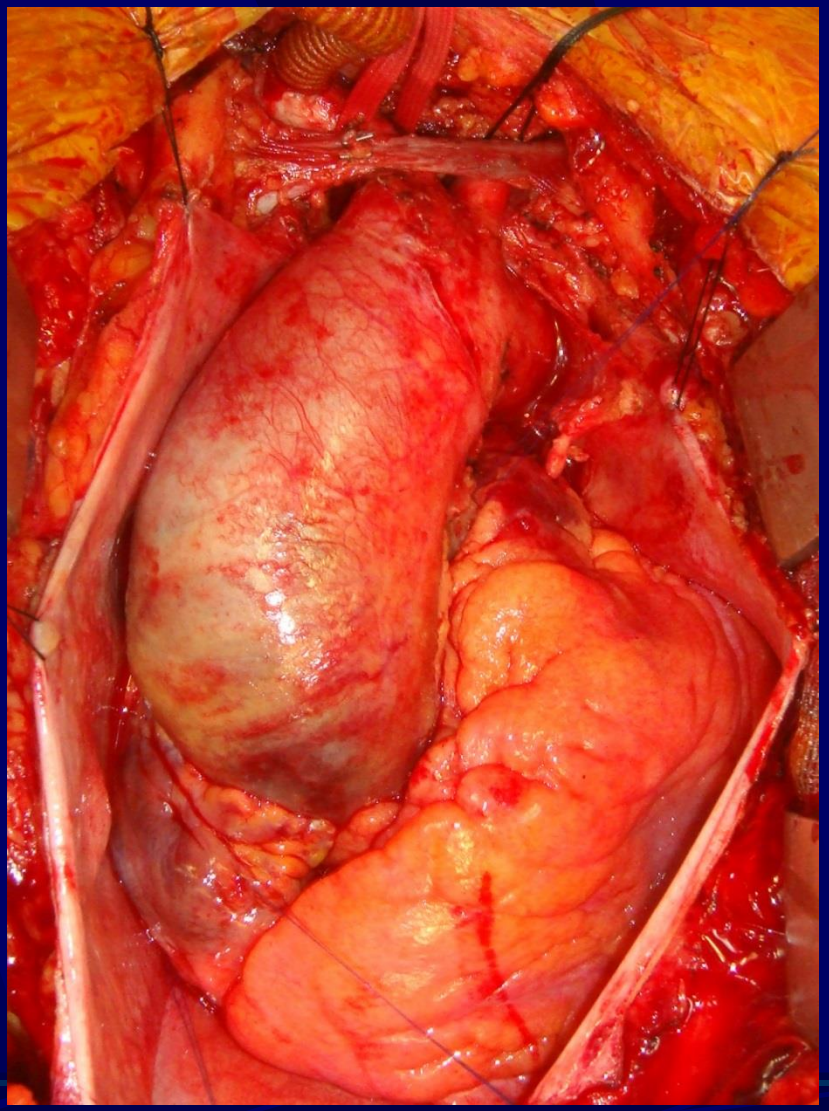
- Pte clinically stable.
- Complicated Type A aortic Dissection. (false lumen progression, supra-aortic and visceral branches compromise)
- DAPT on-board.
- Balancing aortic risk, ischemic risk and bleeding risk for surgery

Aortic surgery was indicated

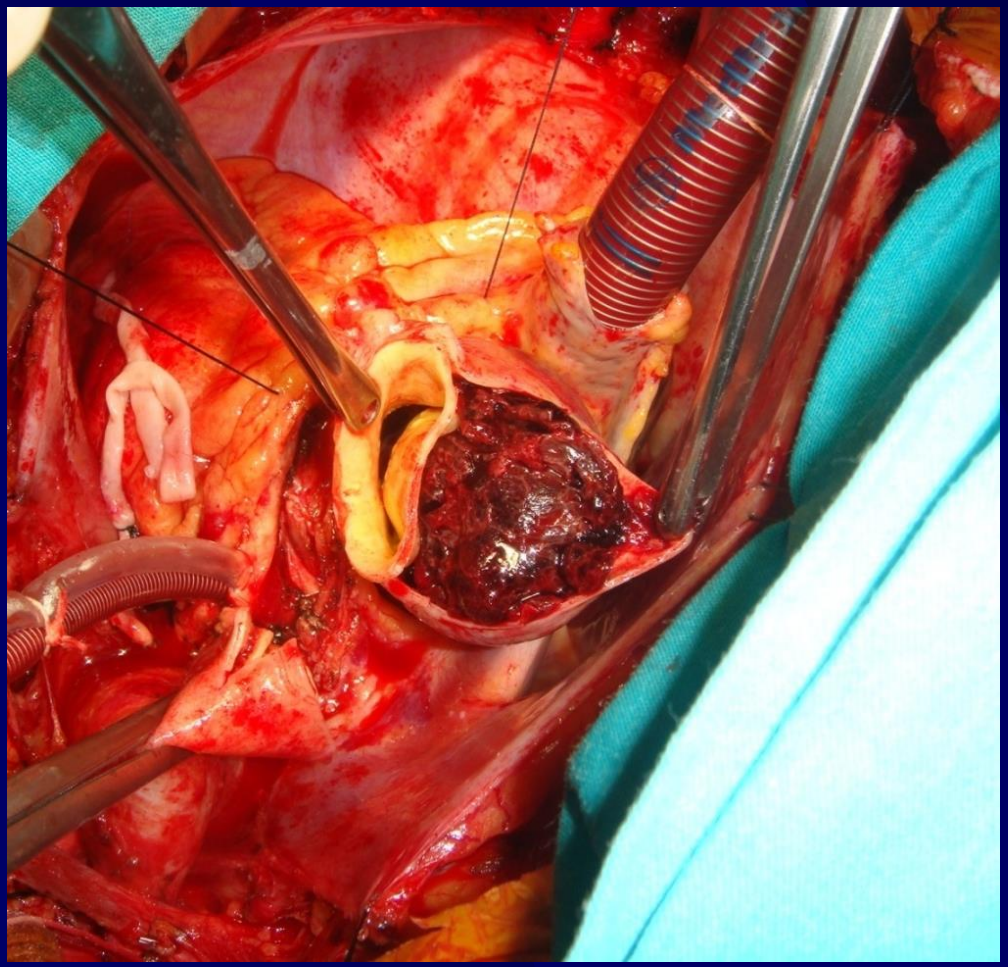
- Ticagrelor was stopped by 4 days.
- Aortic root and hemiarch replacement + SVG to LAD

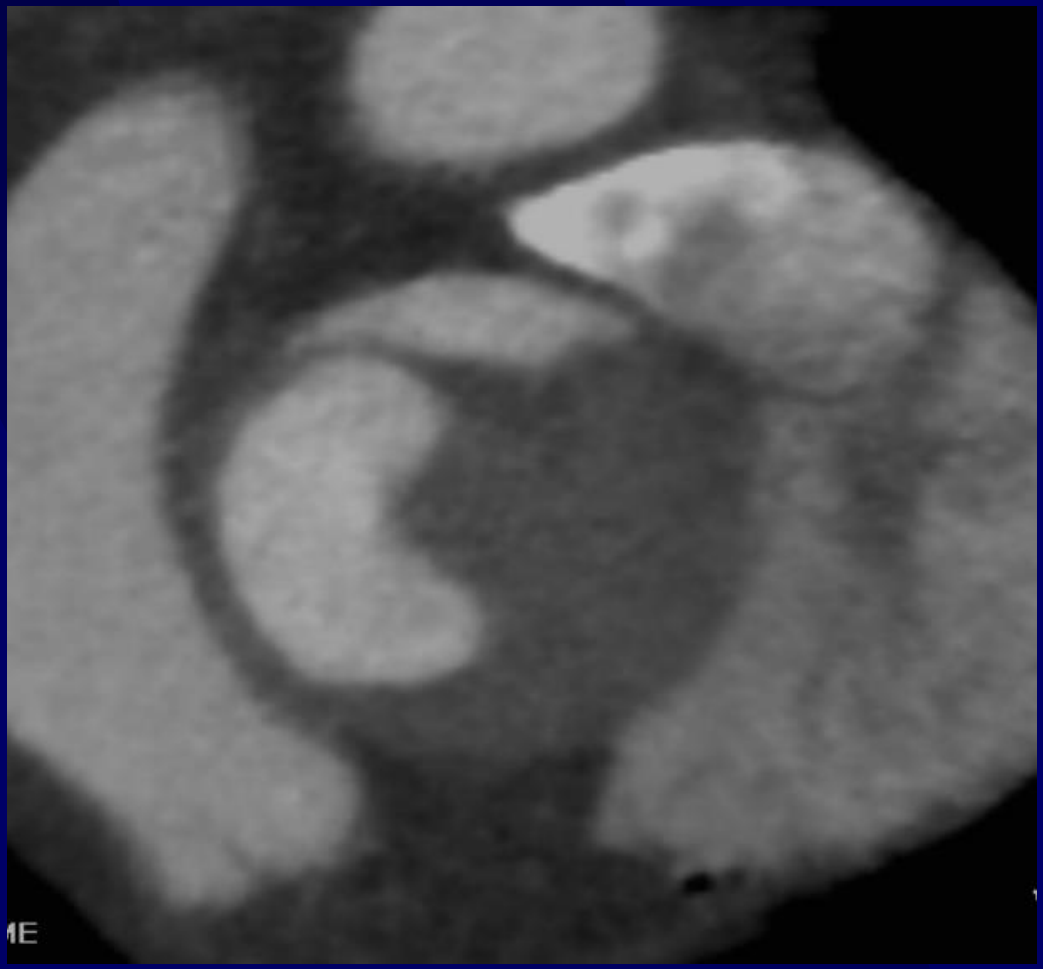
- Surgery (Cross clamp 107', pump time 122', Circulatory arrest 22'; Mild Hypothermia).
- 5 Red Cell Unit transfusions.

Aortic surgery was indicated

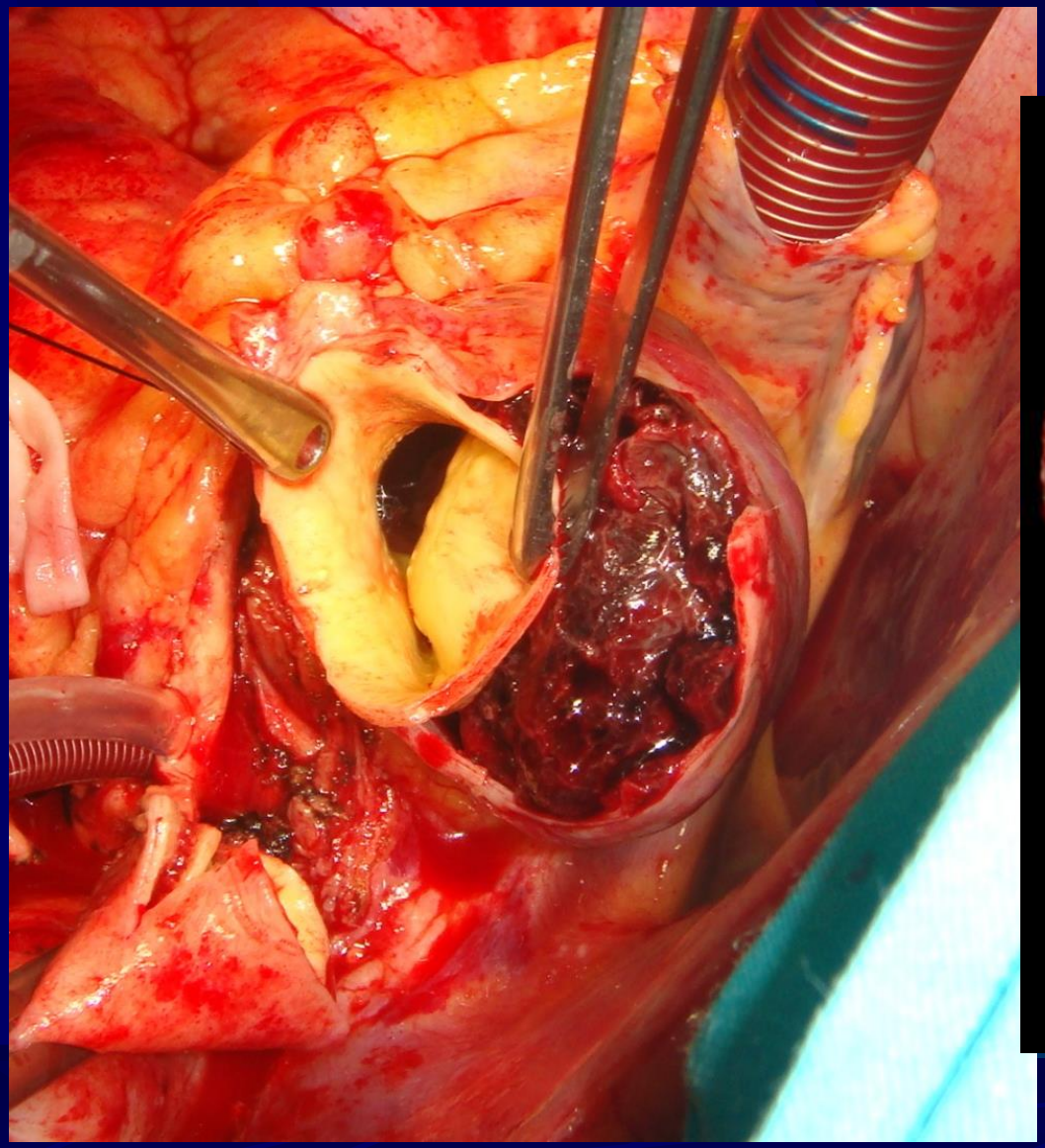


Aortic Surgery Findings

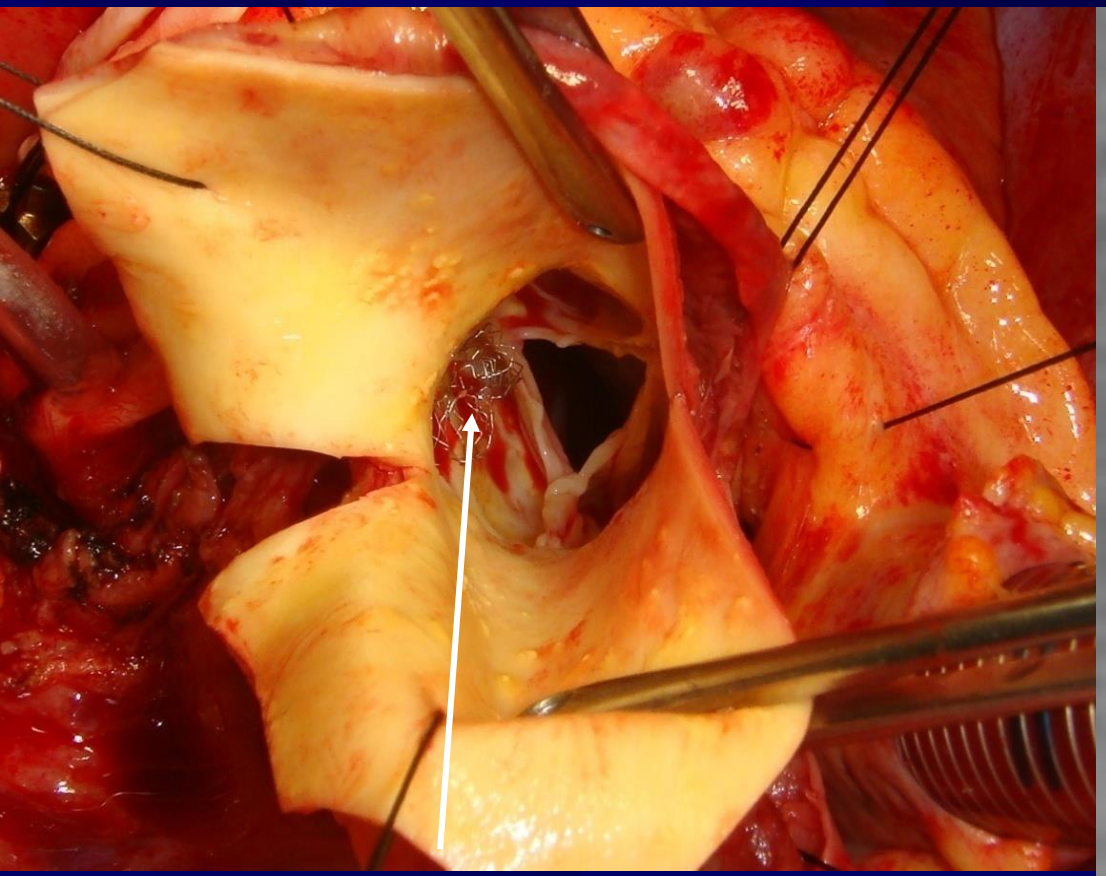


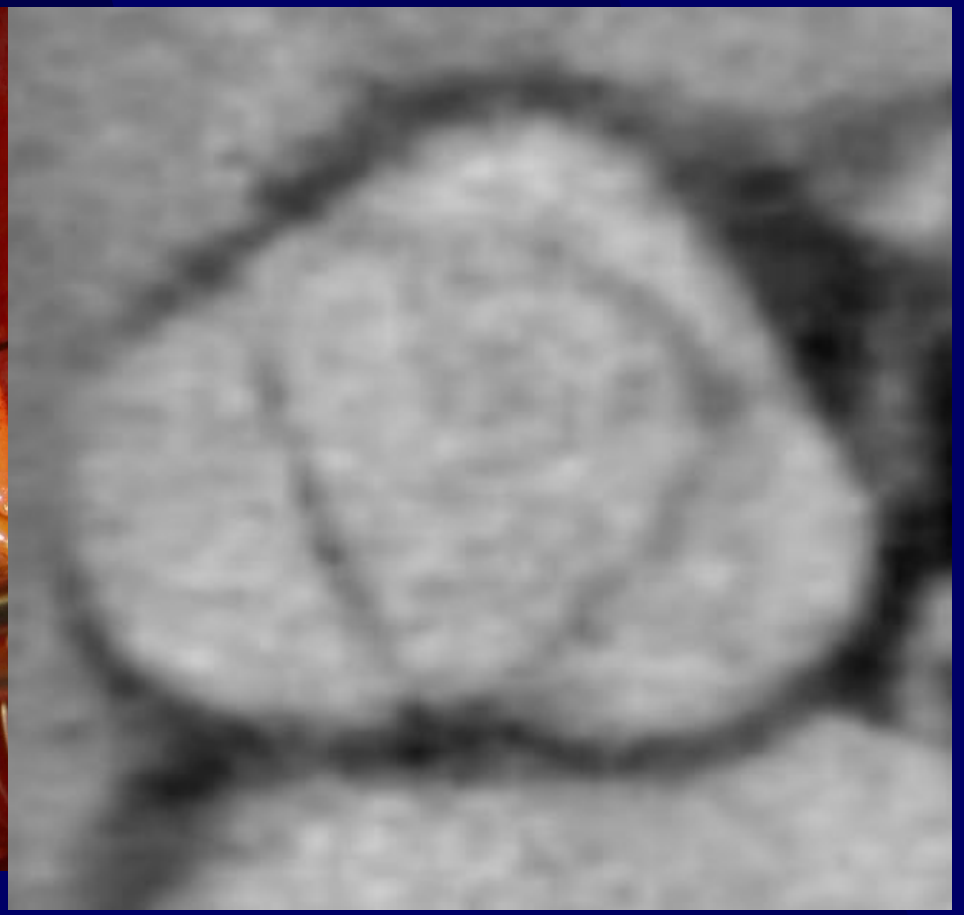


Aortic Surgery Findings



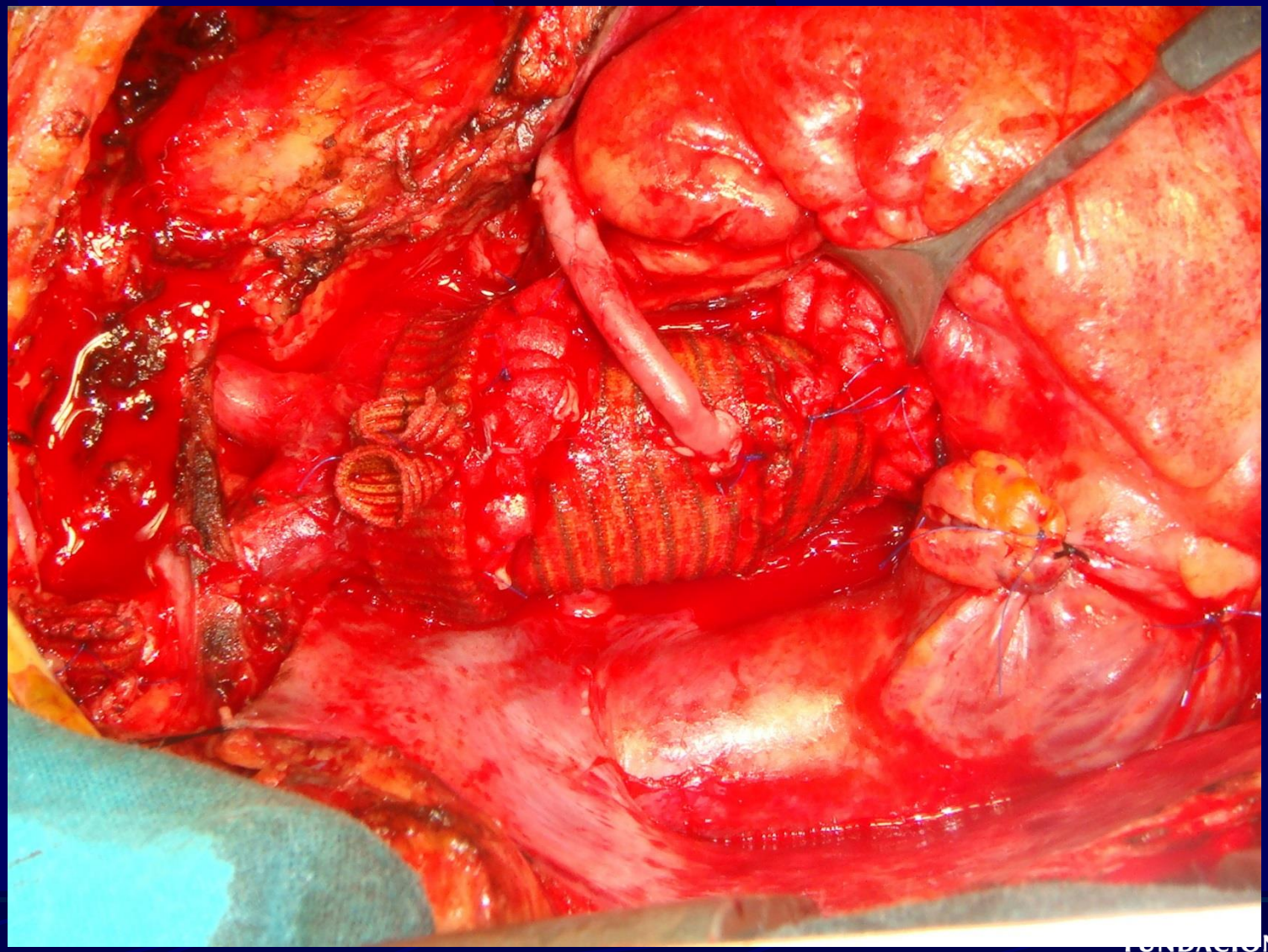
Aortic Surgery Findings





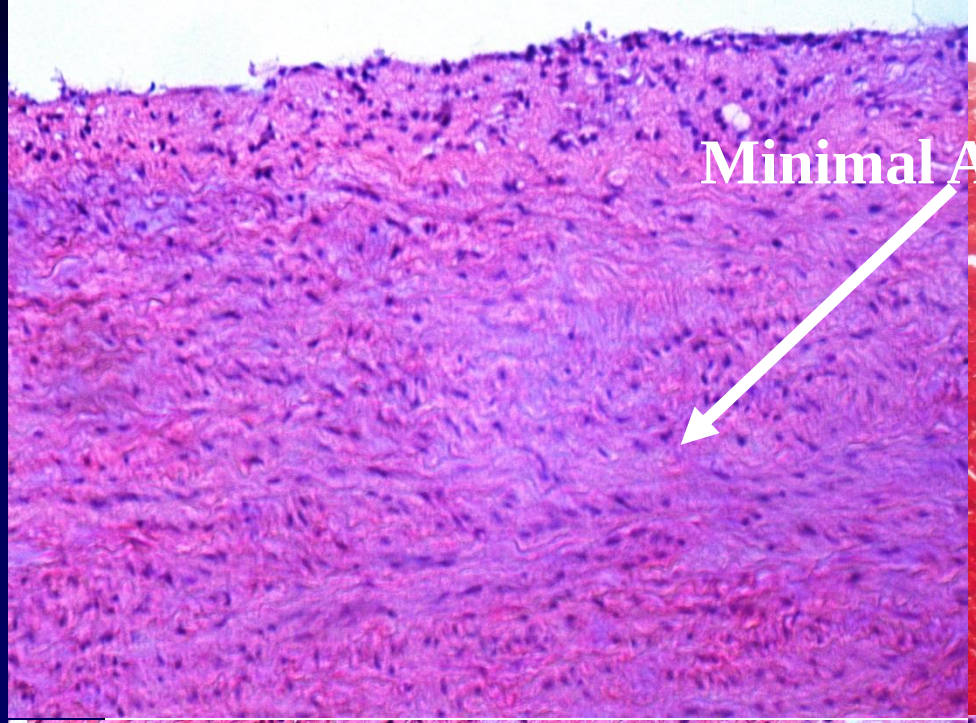
Stent protruding into de aorta

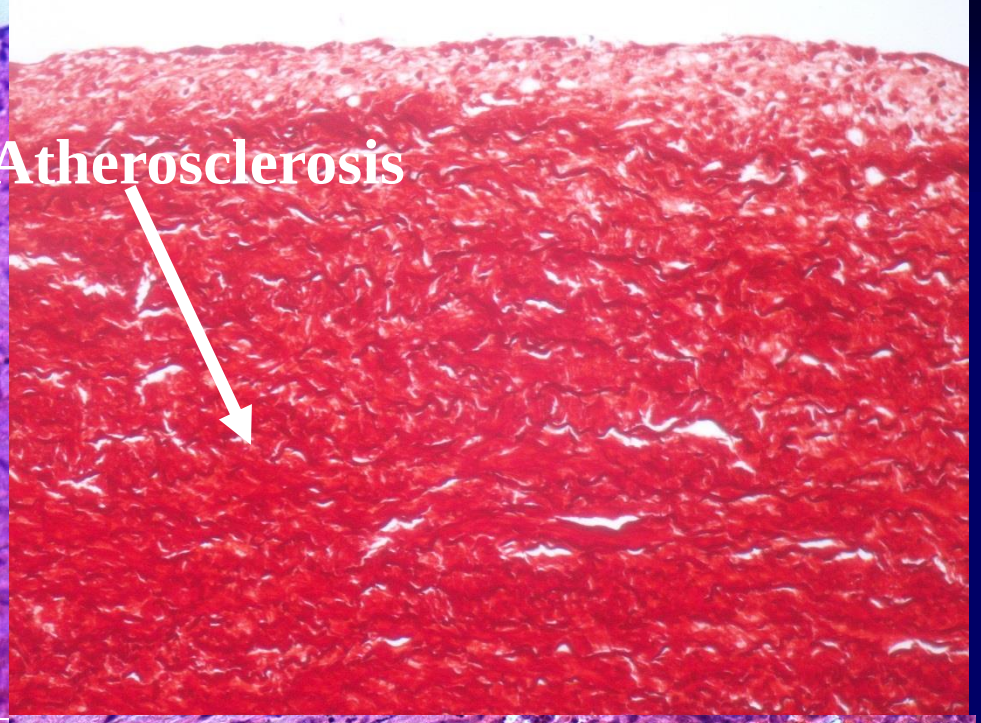
Aortic Surgery Findings: SVG to LAD



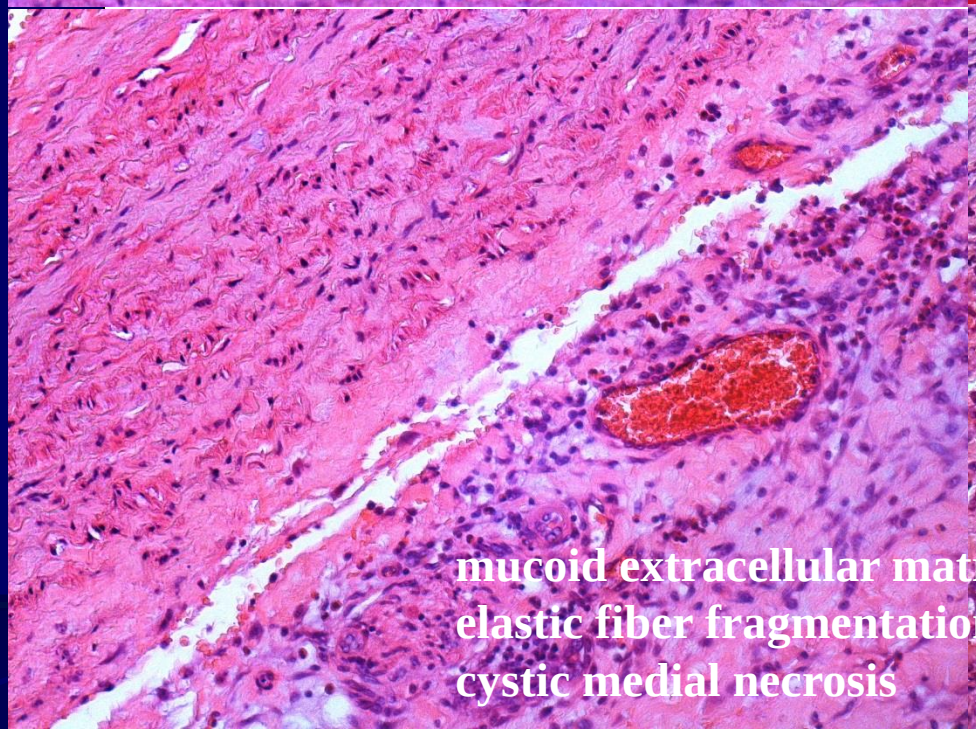
Post-Op Evolution

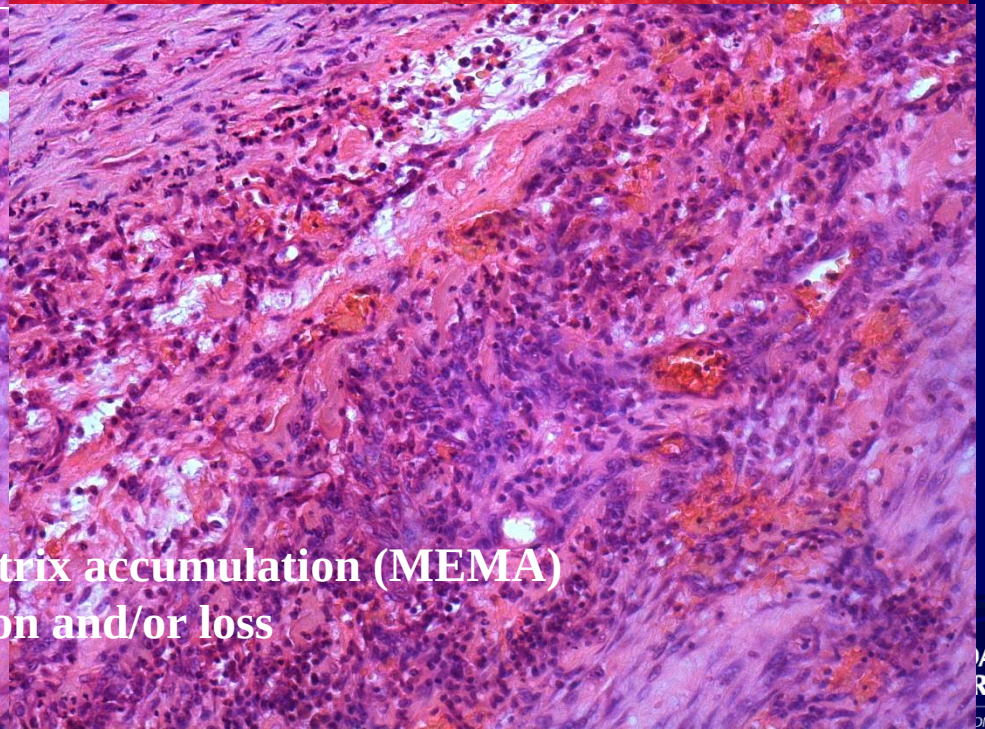
- Vasoplegic syndrome, requiring Norepinephrine and two doses of Methilene Blue.
- Supraventricular tachycardia treated with amiodarone.
- Maximum acid lactic level (58mg/dl)
- Clopidogrel was restarted after chest tube withdrawal.
- Pte discharged after 12 days.





Minimal Atherosclerosis

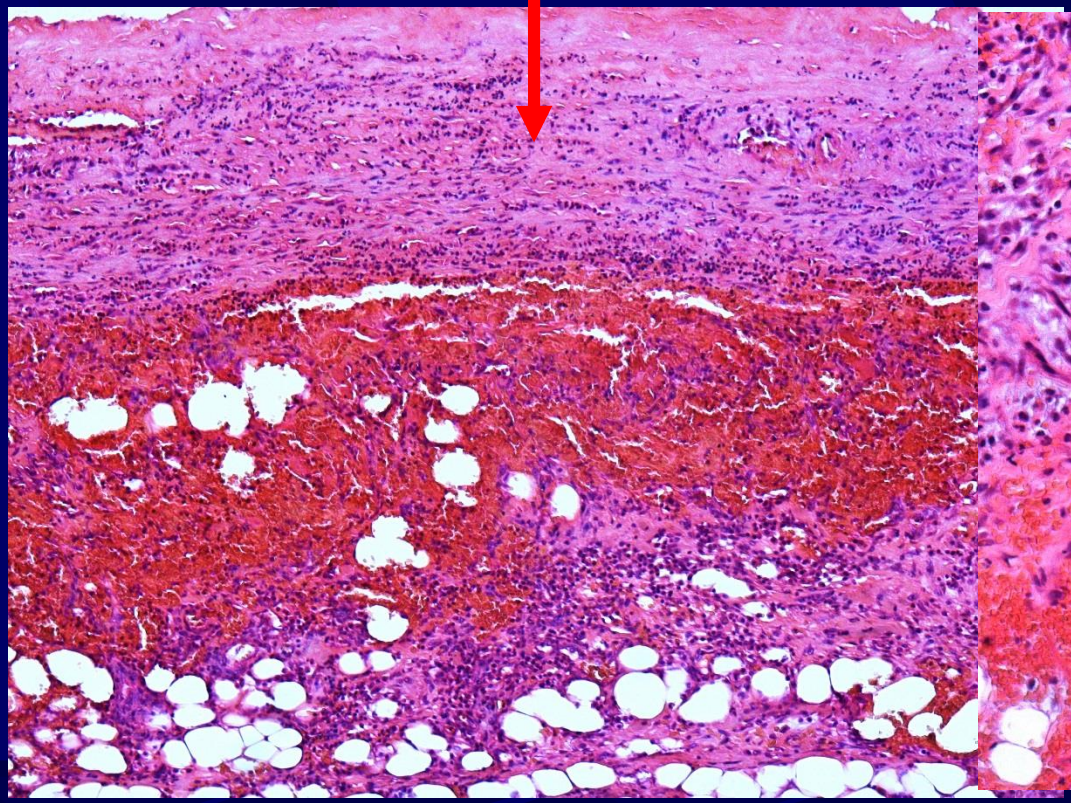


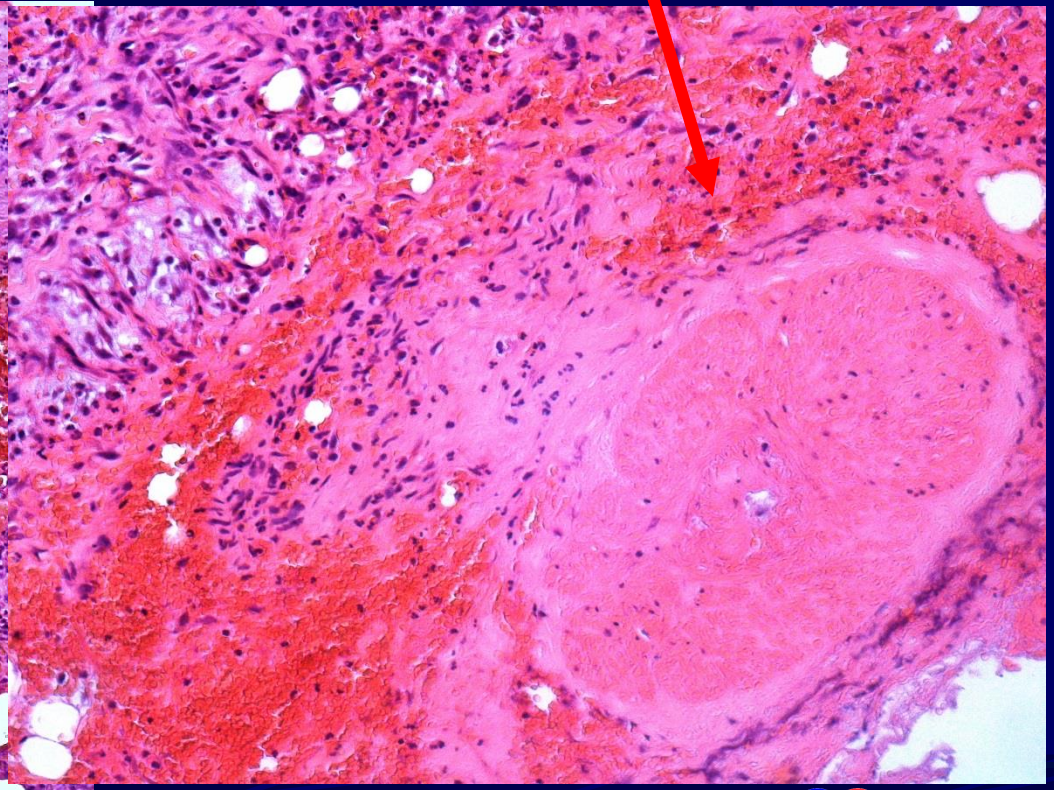


mucoid extracellular matrix accumulation (MEMA)
elastic fiber fragmentation and/or loss
cystic medial necrosis

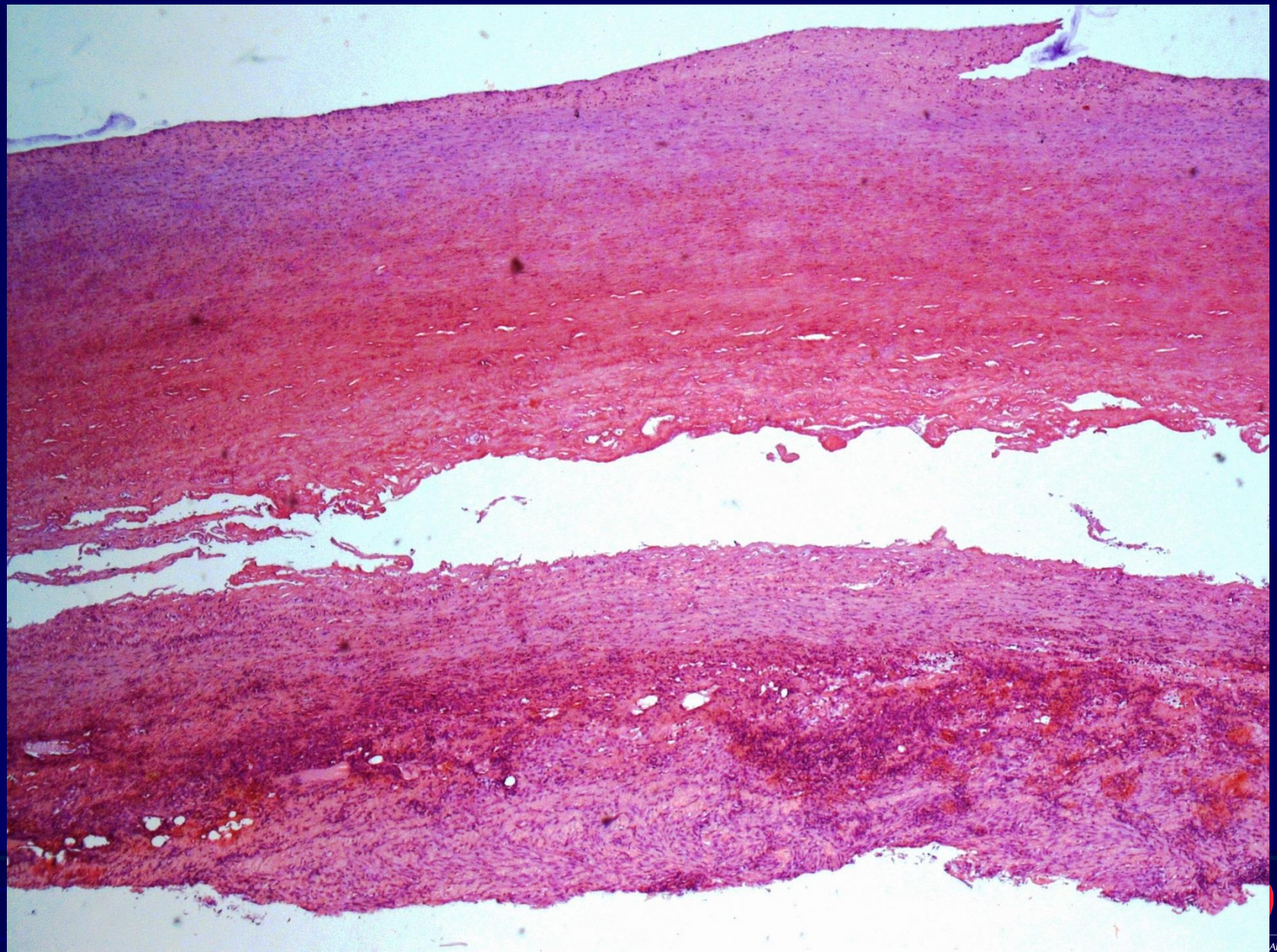
Thrombus

Vasa Vasorum occlusion





Aortic Wall Disection



Iatrogenic type A aortic dissection during cardiac procedures: early and late outcome in 48 patients.

METHODS:
Nº= 48 Ptes (0.06%) who underwent emergency surgery for IAD that occurred either during or shortly after cardiac surgery (55279; 0.006%) , or following cardiac catheterization (135262; 0.01%) from 1995 to 2010.

Histological investigation revealed atherosclerosis in 61.2% of patients, cystic medial necrosis in 22.2%, aortitis in 2.8% and other pathologies in 13.8%.

CONCLUSION:
Iatrogenic Aortic Dissection is a rare but dangerous complication of cardiac surgery and cardiac catheterization, and is frequently associated with pre-existing aortic pathology.

Leontyev S, et al. Eur J Cardiothorac Surg. 2012 Mar;41(3):641-6. doi: 10.1093/ejcts/ezr070. Epub 2011 Dec 1.

Incidence, Management, and Immediate- and Long-Term Outcomes After Iatrogenic Aortic Dissection During Diagnostic or Interventional Coronary ProceduresCLINICAL PERSPECTIVE

-Incidence 0.06% (74 Ptes between 2000 and 2014)

-Treatment:

35 Ptes underwent stent PCI

3 had cardiac surgery

36 were managed conservatively

2 died of cardiogenic shock after the dissection.

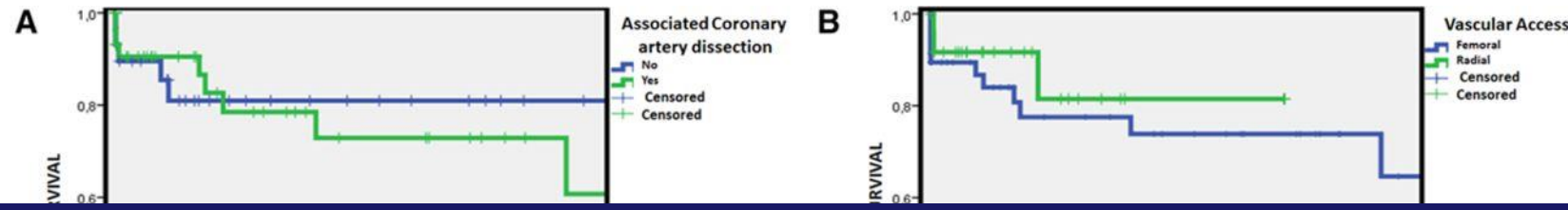
Follow-Up

51.2 months (range, 16.4–104.8 months), none of the remaining ptess developed complications as a result of the dissection, progression, ischemia, pain, or dissection recurrence.

Iván J et al. Circulation Volume 131(24):2114-2119 June 16, 2015

Incidence, Management, and Immediate- and Long-Term Outcomes After Iatrogenic Aortic Dissection During Diagnostic or Interventional Coronary ProceduresCLINICAL PERSPECTIVE

Kaplan–Meier curve of long-term major adverse cardiac event (MACE)–free survival.



Conclusions

Iatrogenic catheter dissection of the aorta is a rare complication that carries an excellent short- and long-term prognosis with the adoption of a conservative approach.

When a coronary artery is involved as an entry point, it usually can be safely sealed with a stent with good long-term outcome

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Myocardial Ischemia as a Complication of an Acute Type A Aortic Dissection

- The incidence of coronary malperfusion due to AAD is reported to be 1–9%.
- The initial presentation of STEMI was seen in 4.6%
- Malperfusion of the coronary arteries due AAD are often misdiagnosed and treated as a coronary emergency.
- AAD affects the **right coronary artery more often** than the left coronary artery.

Ikeda K. Kyobu Geka 1999; 52: 89 – 93.
Hiroshi O. Jpn Circ 2000; 64: 533 - 536

Gracias por su Atención

Thank you for your Attention

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