

PCI for STEMI With Cardiogenic Shock

- Case Study -

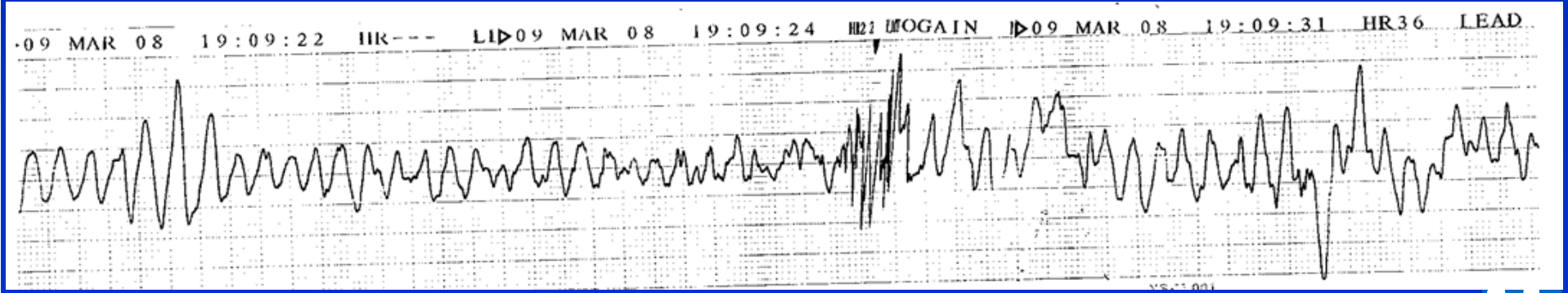
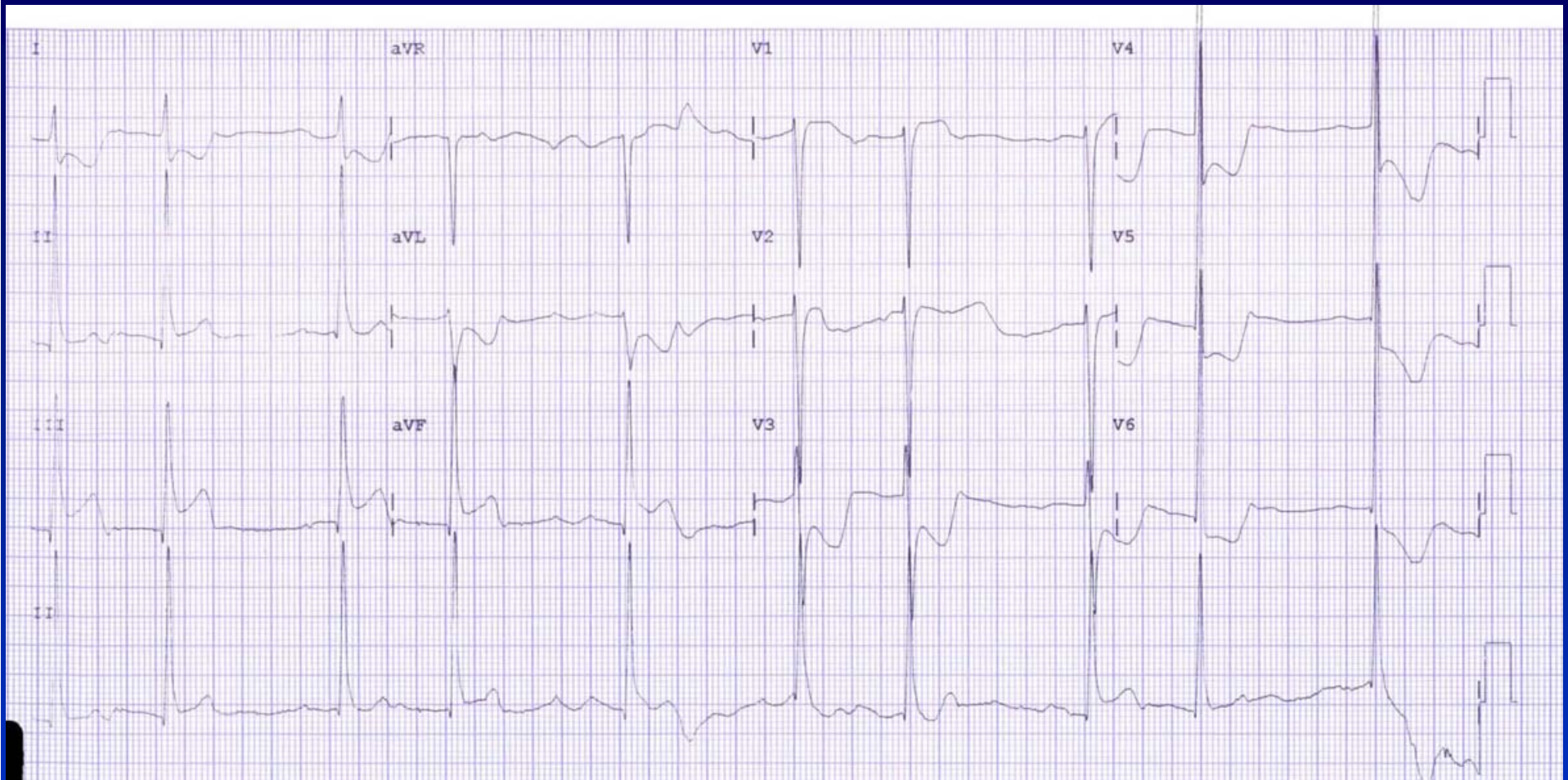
Jaehwan Lee, MD, PhD

*Chungnam National University Hospital,
Daejeon, Korea*

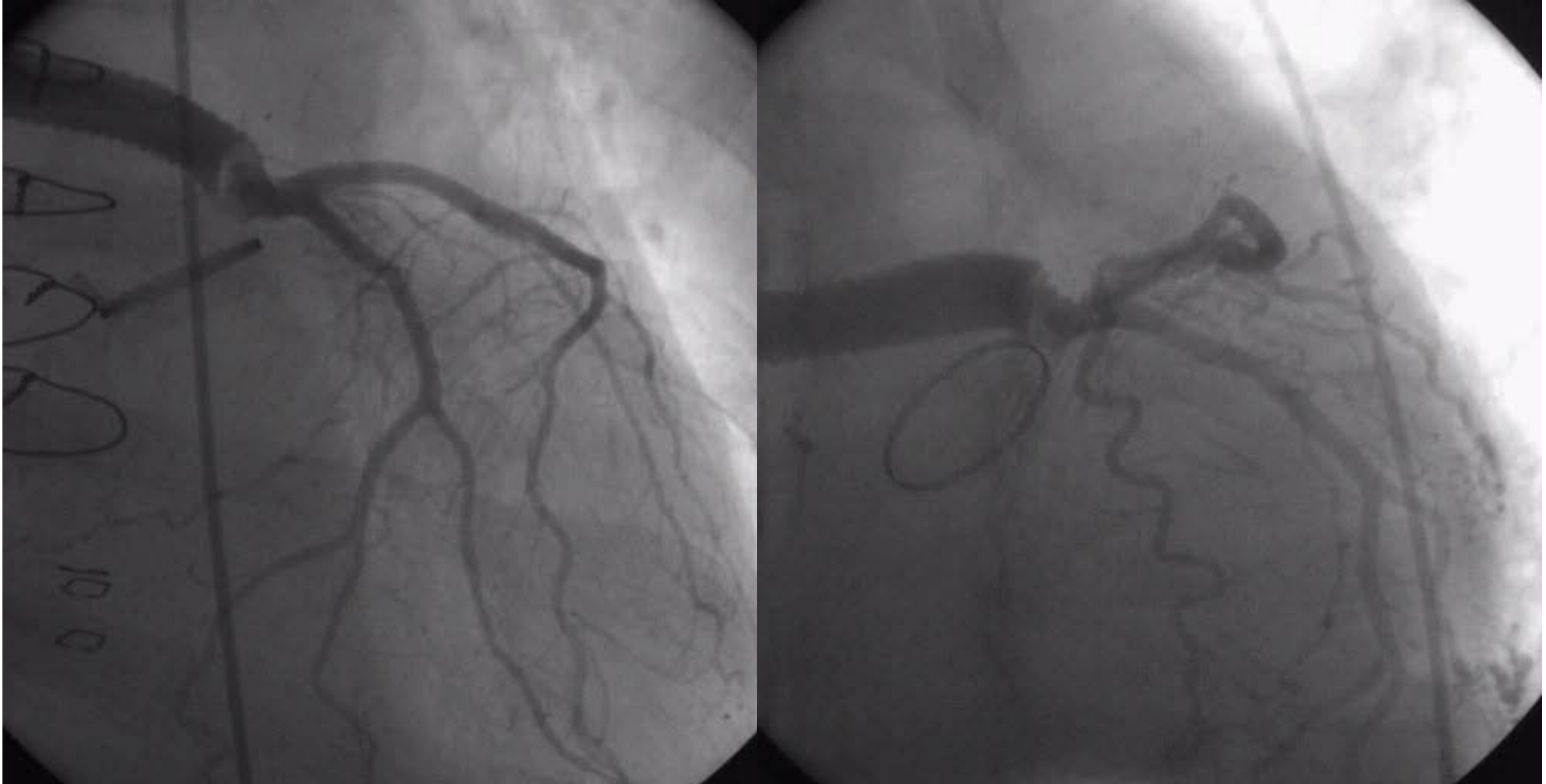
CASE 1

Primary PCI for Totally Occluded Cabrol Composite Graft

- **52 YO female**
- **Marfan syndrome**
 - **Bentall procedure (?) at SNUBH 12 DA**
 - **Op. recording was not available**
- **Inferior STEMI for 1 hour**
- **V/S Uncheckable initially**
 - **60/30 mmHg – 54 bpm**
 - **90/60 mmHg – 60 bpm in the cath lab**
- **PT; 1.6 INR**

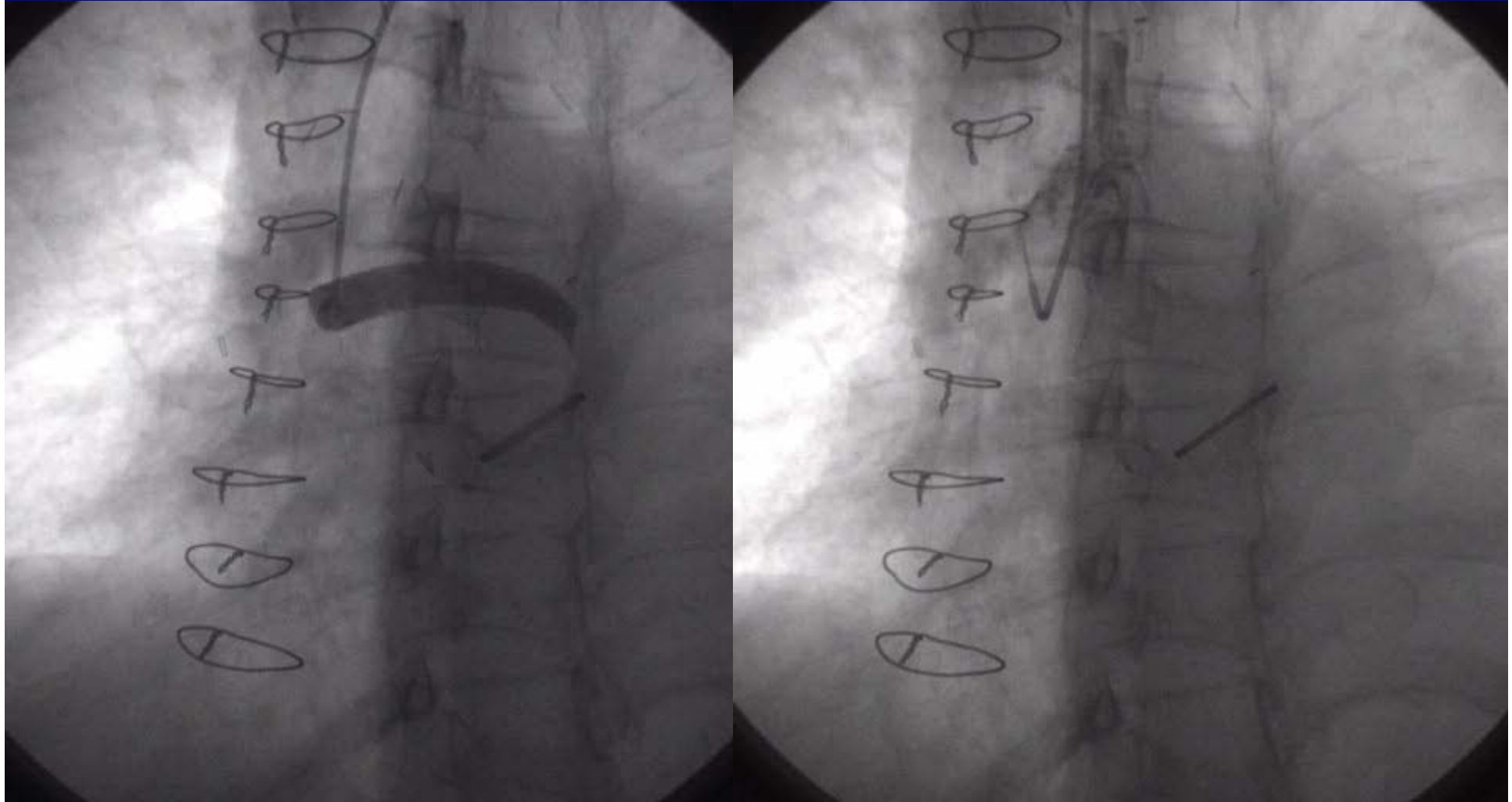


LCA from right aortic wall



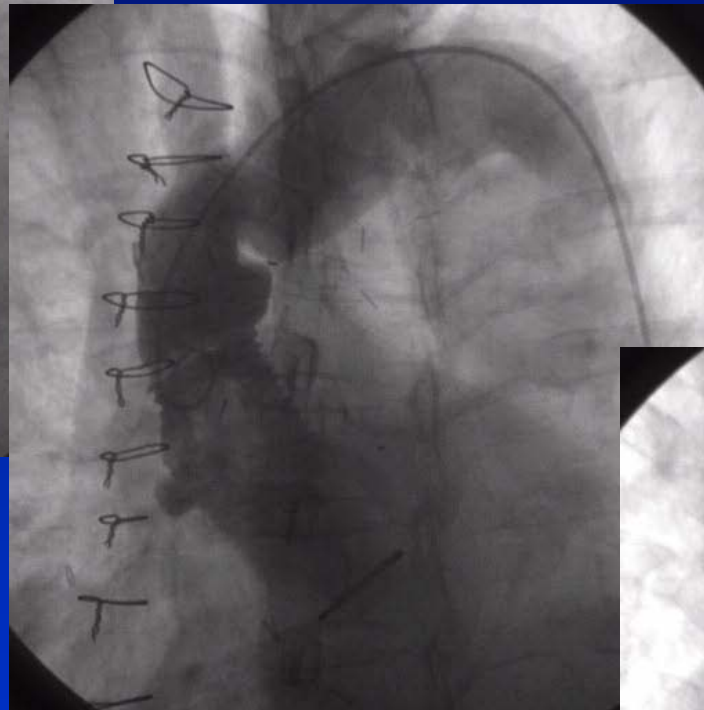
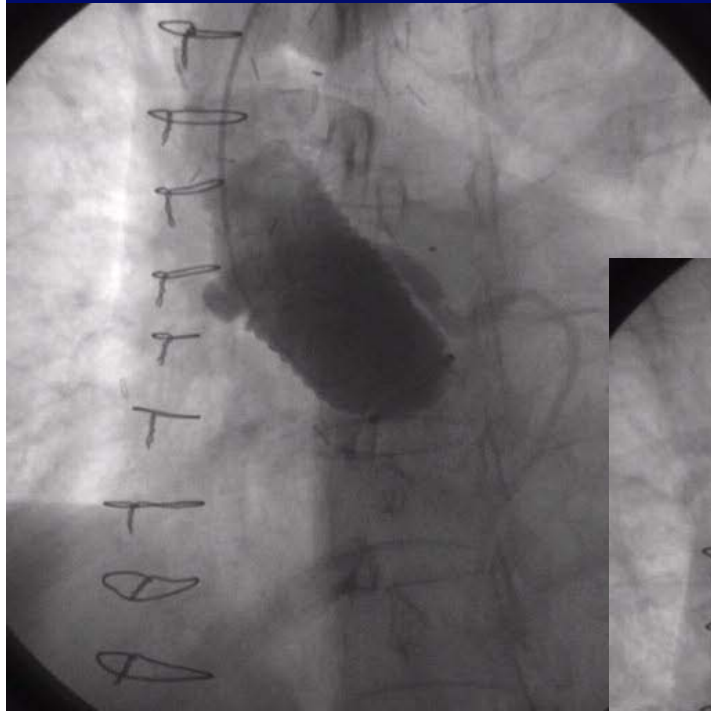
7Fr Femoral sheath, 5 Fr AL1 diagnostic

LCA from right aortic wall



5 Fr JR diagnostic

Aortogram

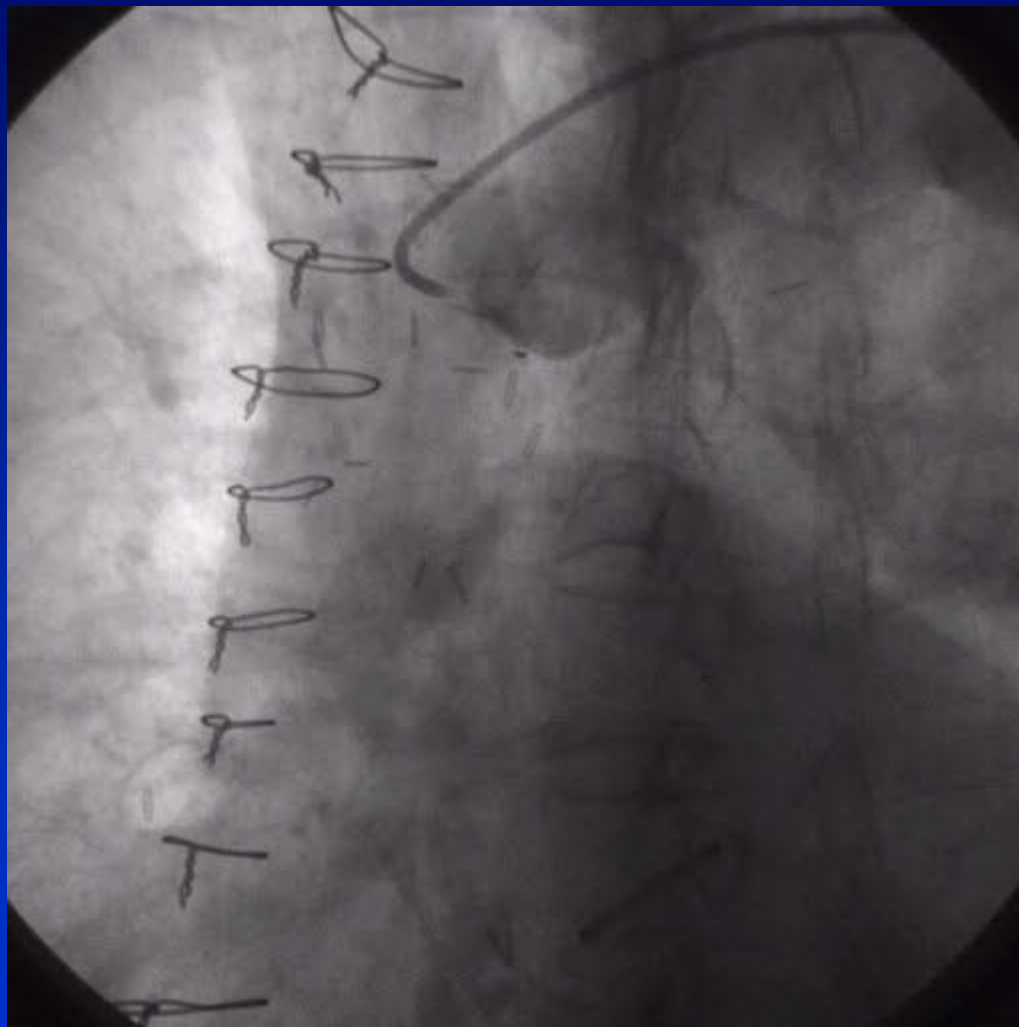


⇐ *Persistent
distal aortic
dissection*



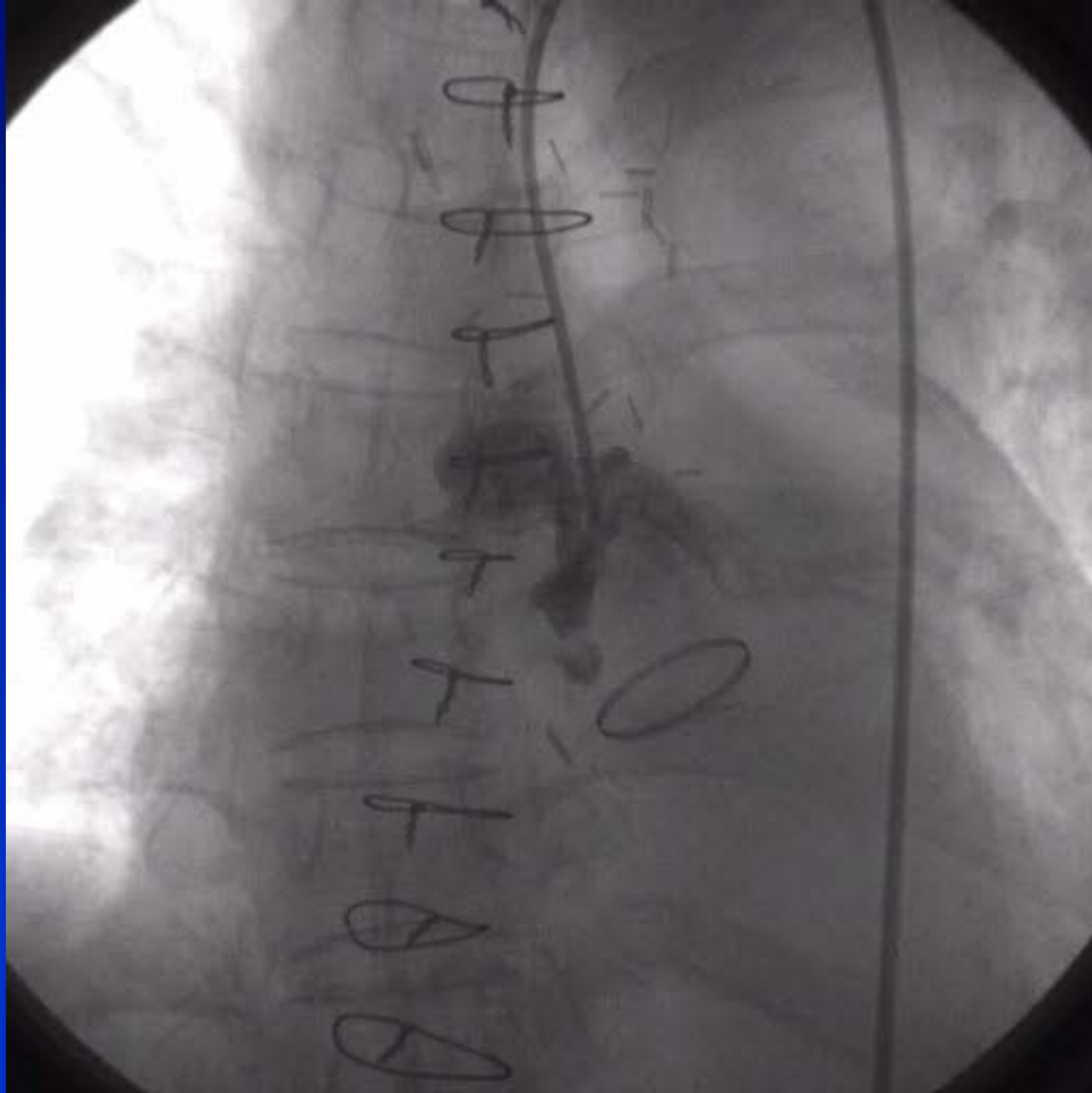
But, invisible RCA ostium ...

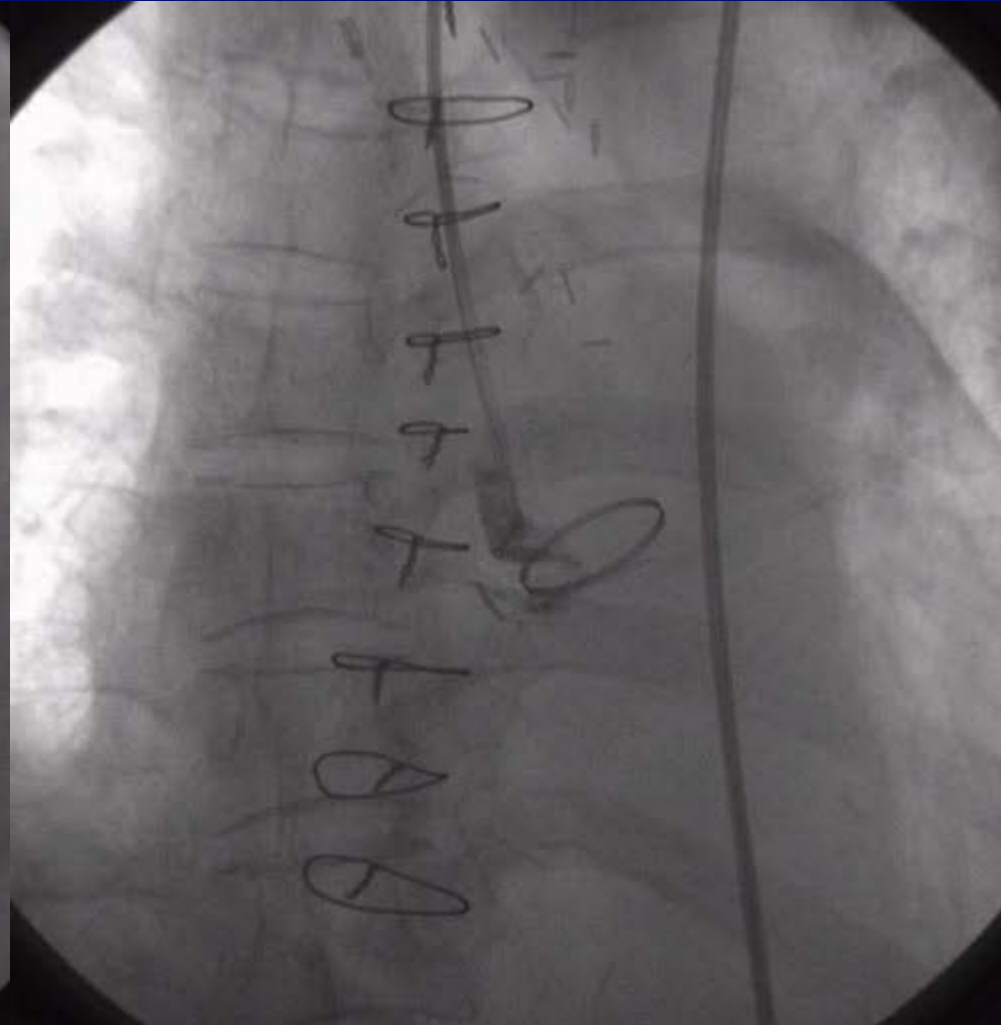
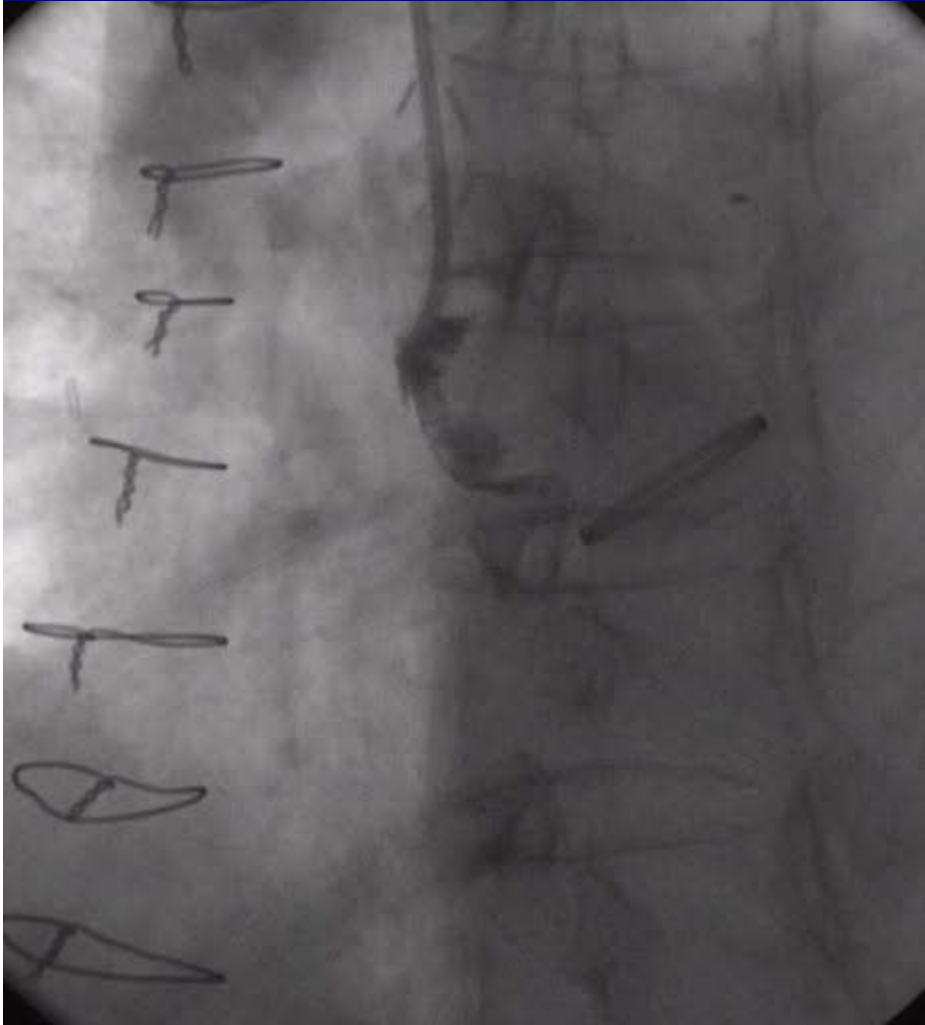
Where is RCA ostium?



≥ 30 minutes had passed ...

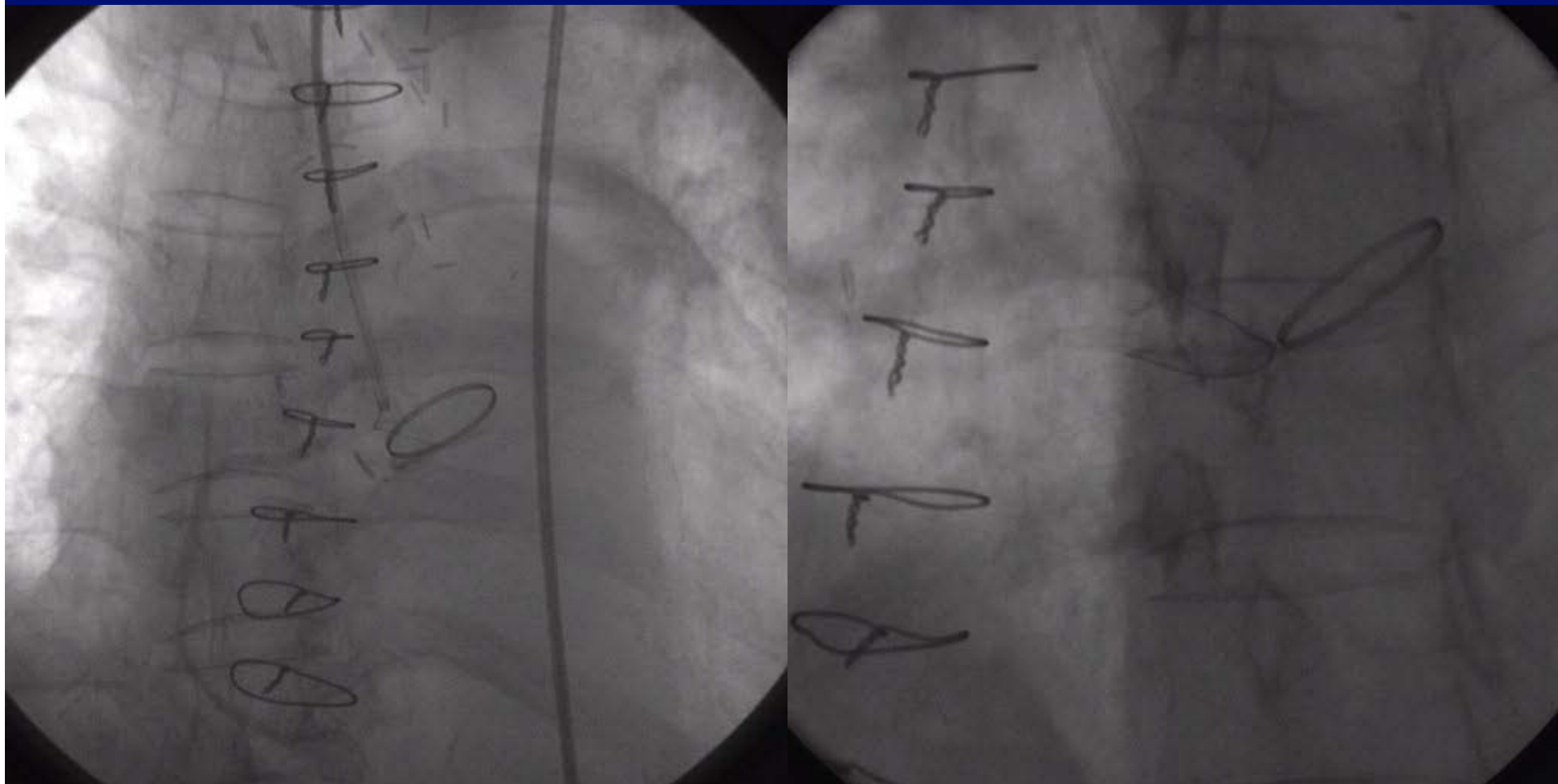
?



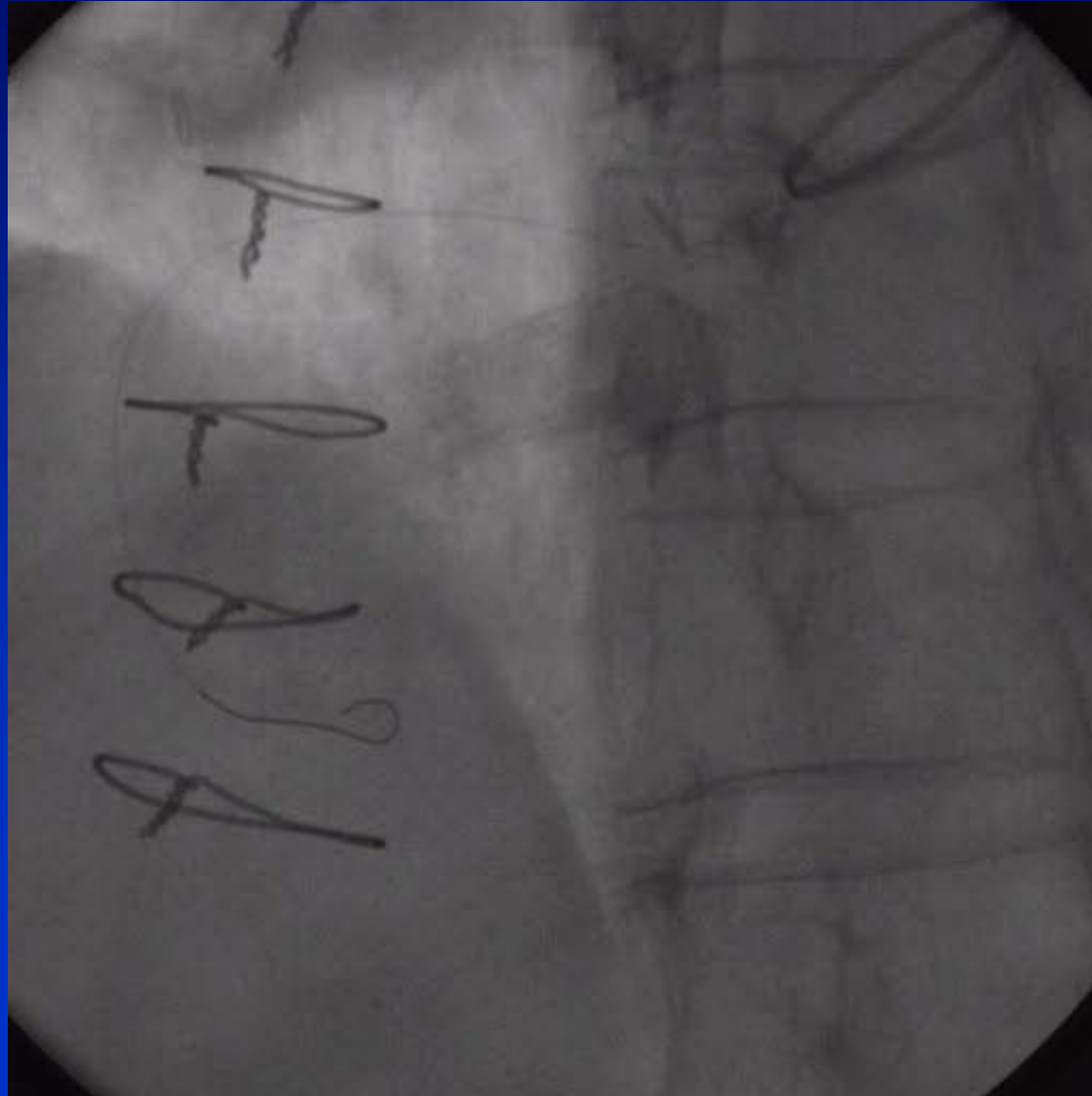


7Fr JR, poor support → 7Fr Multipurpose

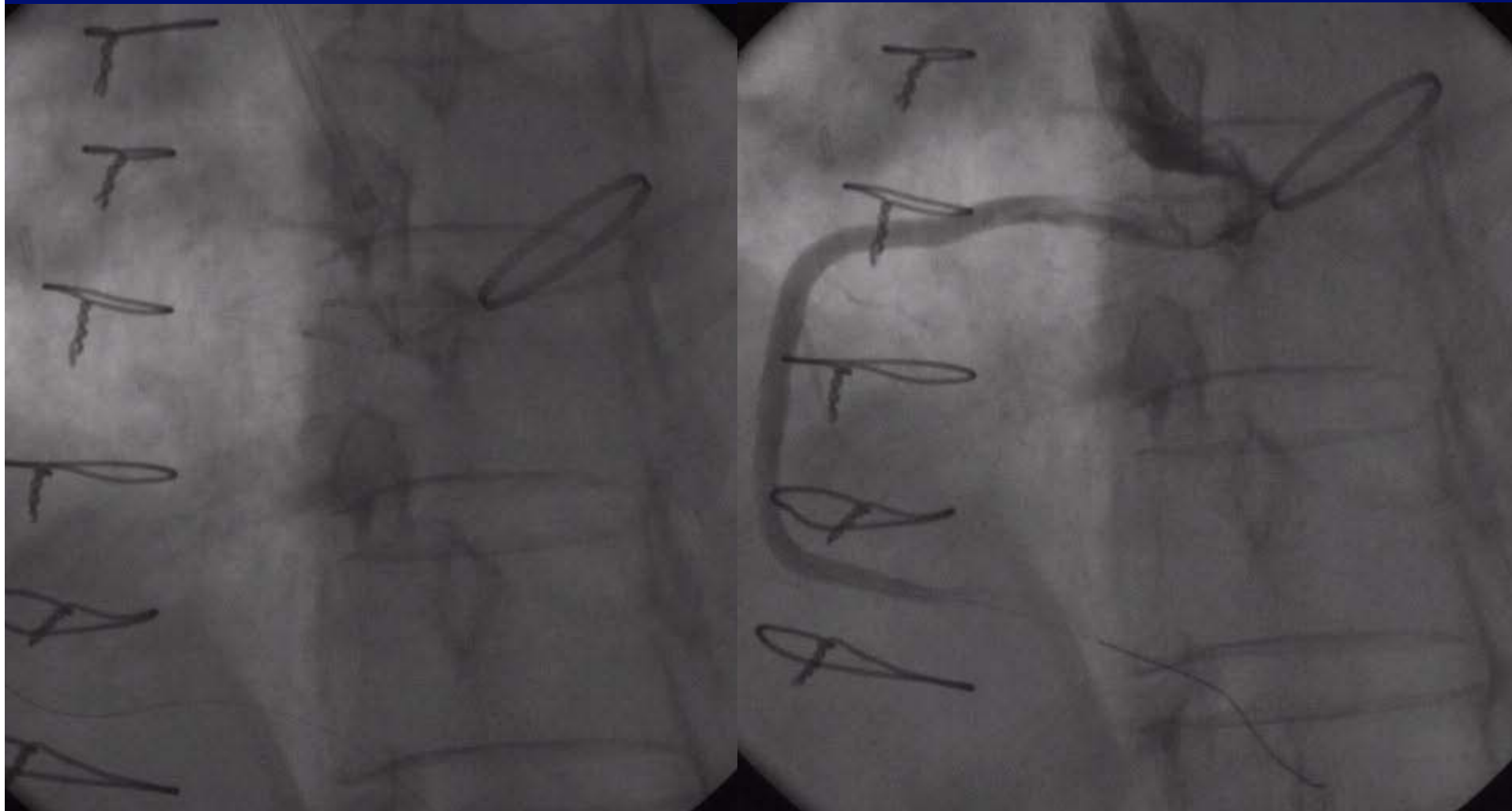
Wiring with OTW



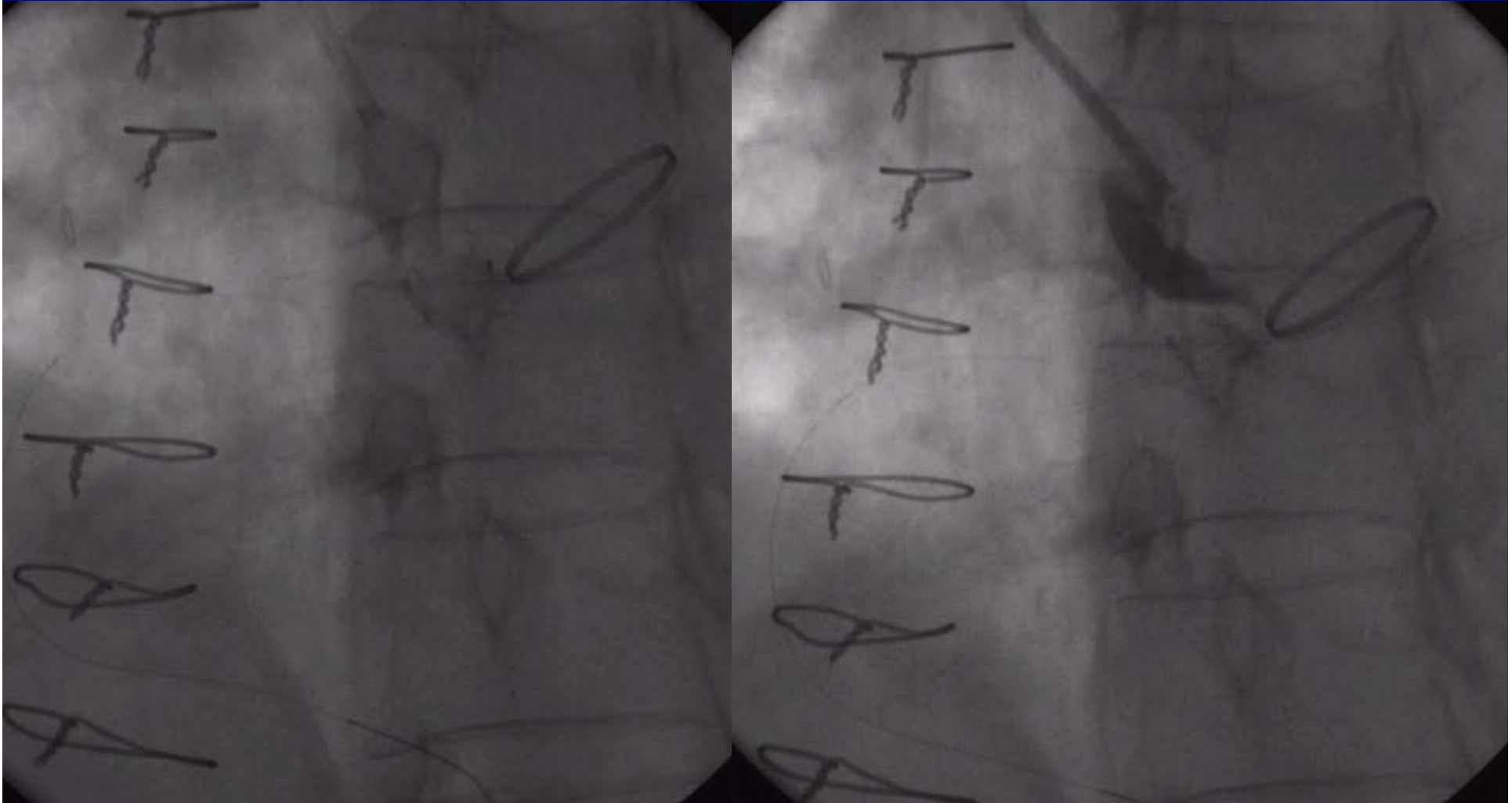
Wiring with OTW



Ballooning 1.5 mm

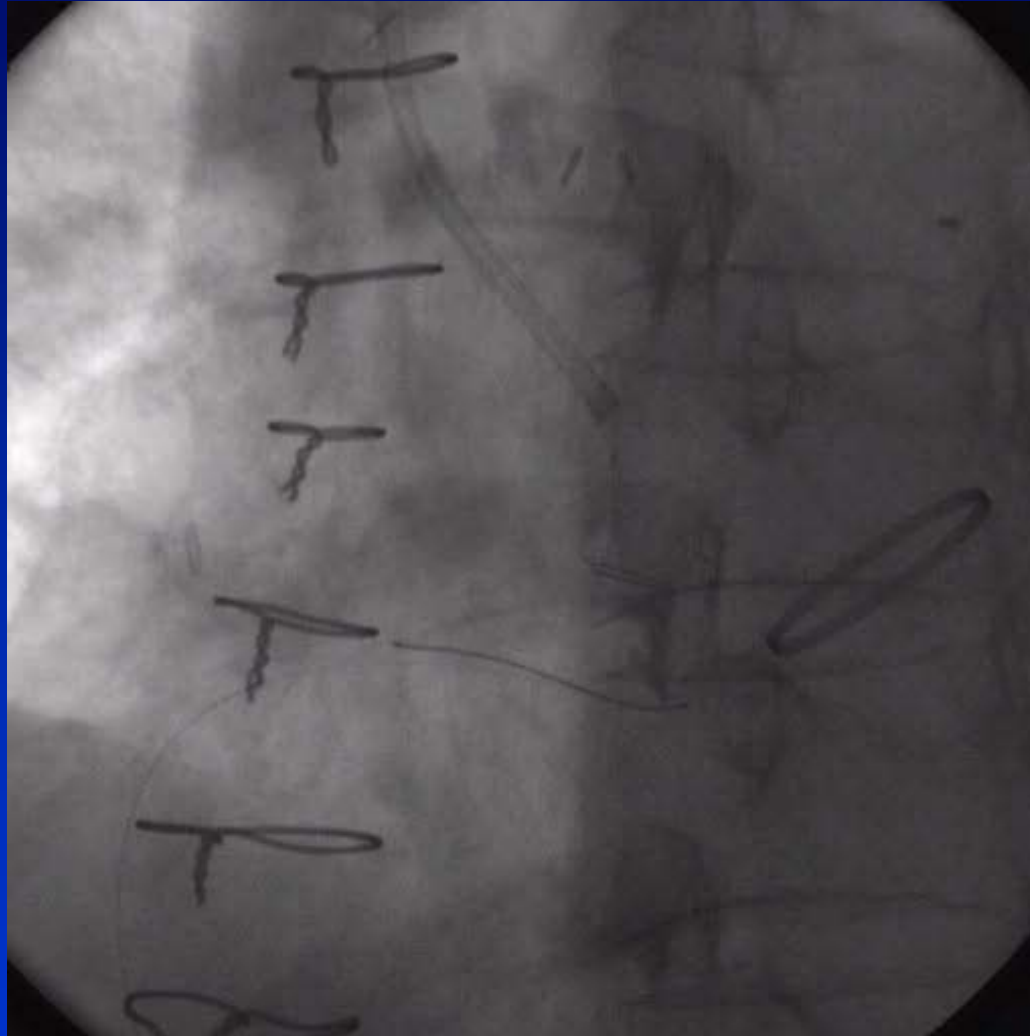


Suction



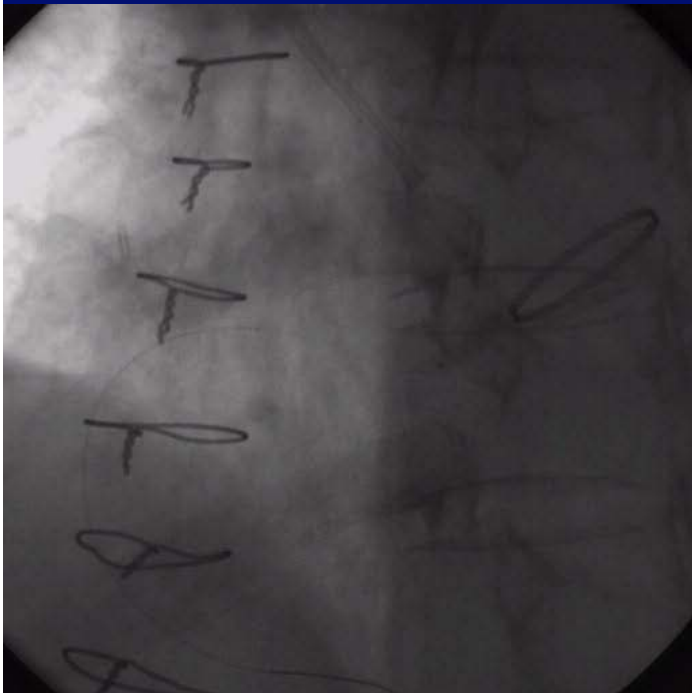
Not worked d/t heavy angulations

Filterwire™ placement

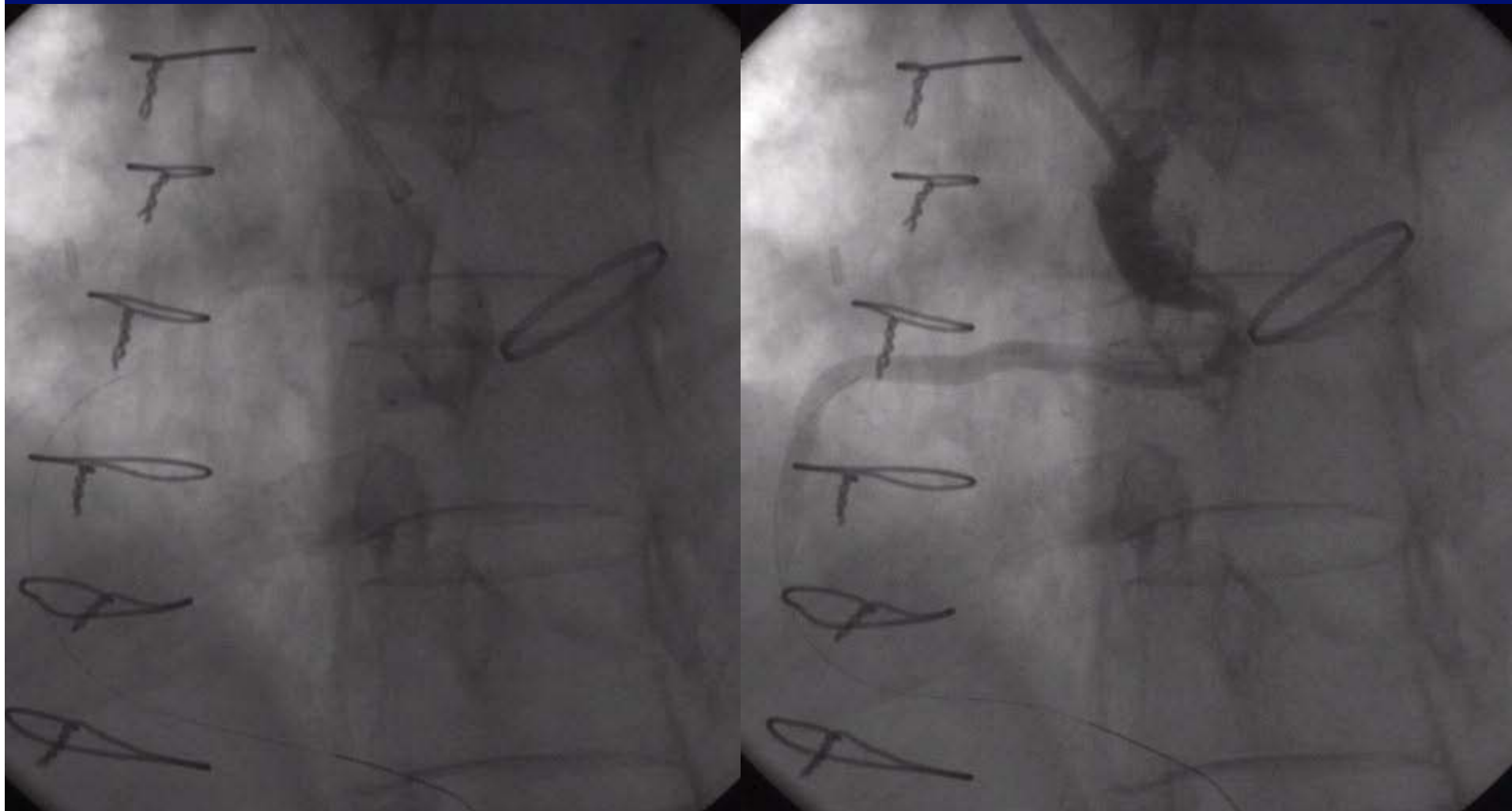


Not worked

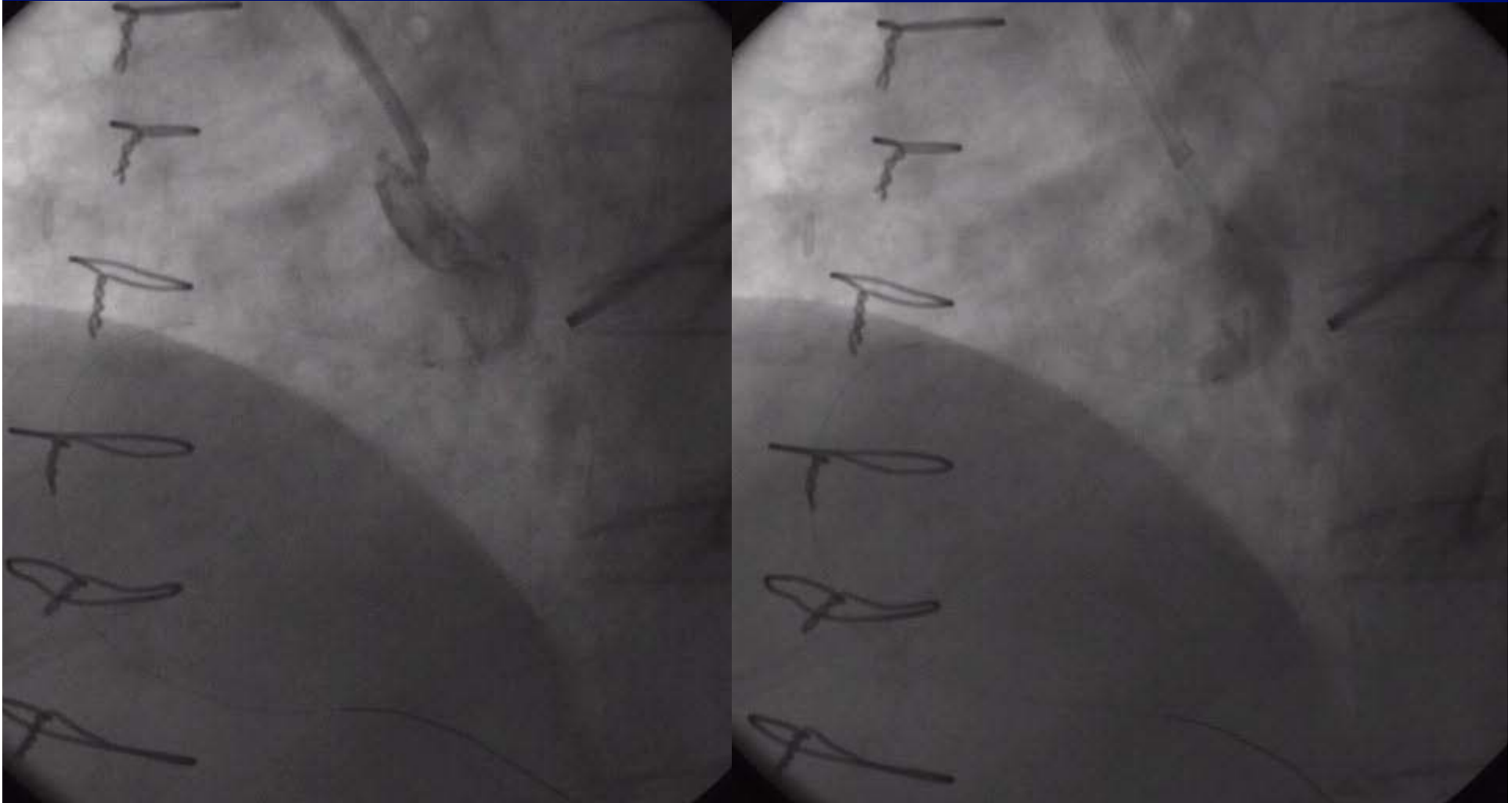
3.0 mm balloon



4.5 mm balloon

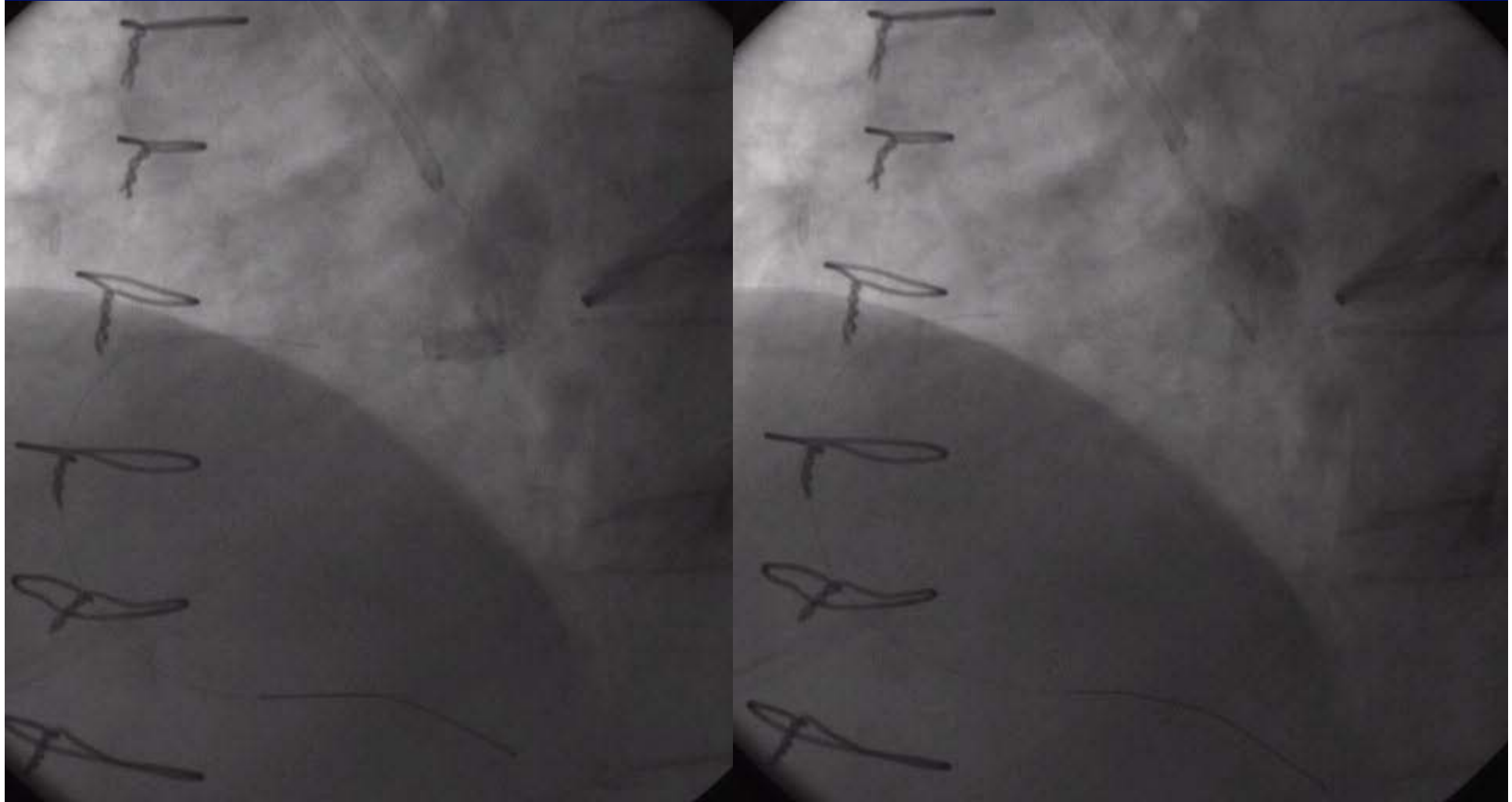


Stenting

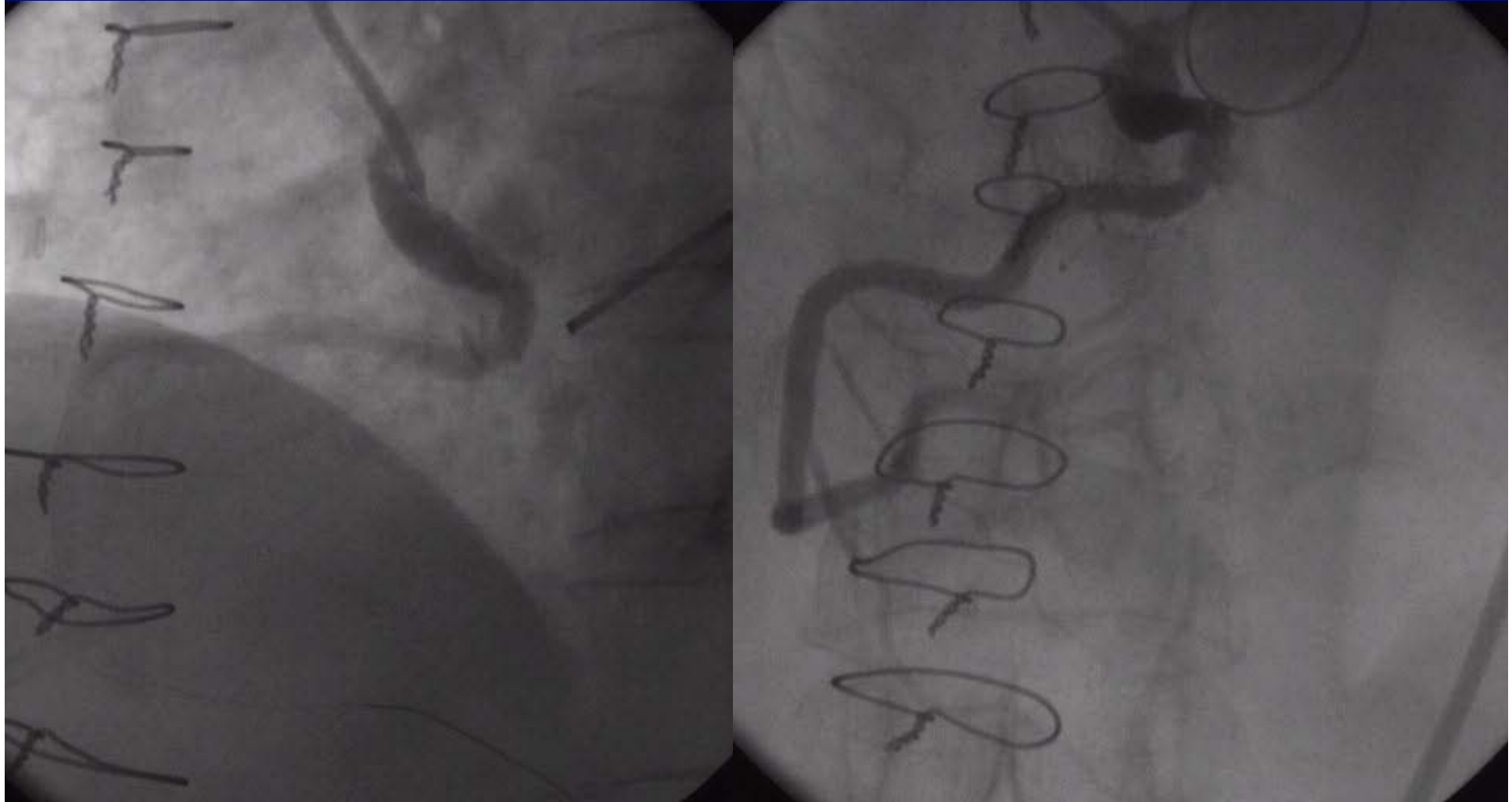


5.0×20 mm Libertè™

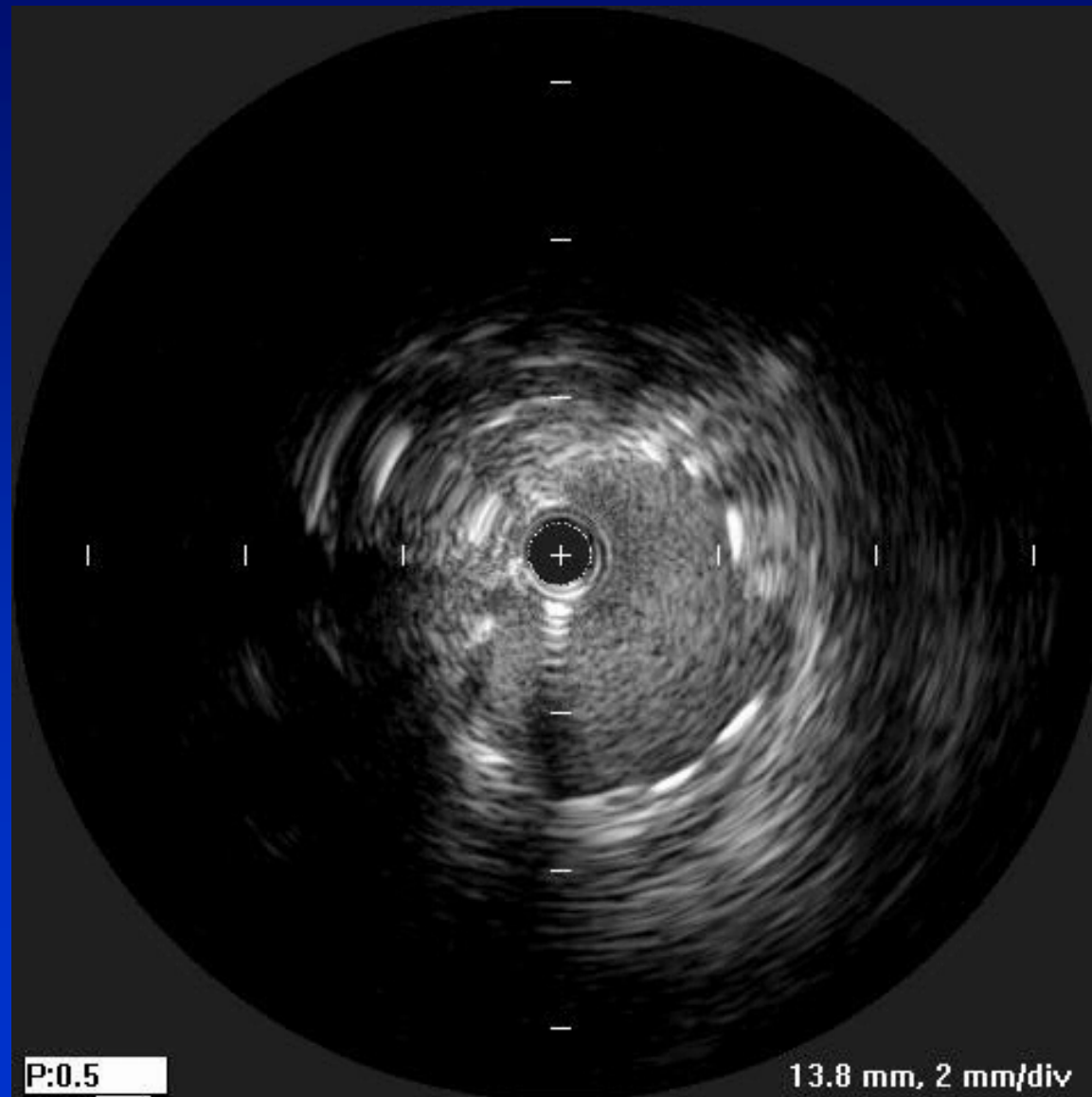
HP with Quantum 5.0



Final Angiogram



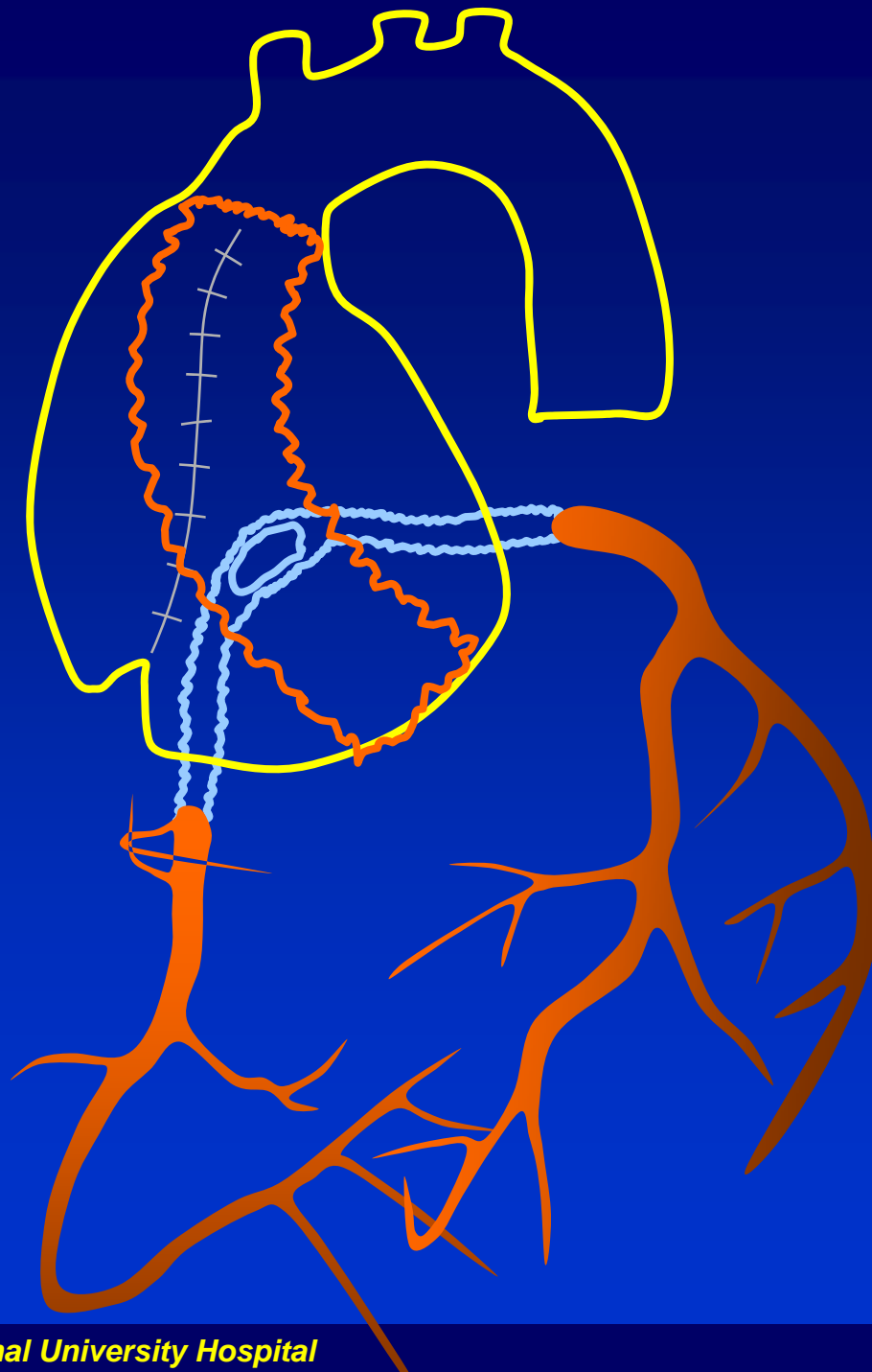
Final IVUS



Coronary MDCT



Cabrol Operation



CASE 2

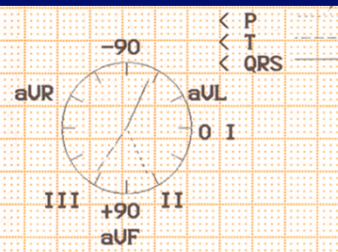
Primary PCI for LMCA STEMI

- 72세 남자
- Exertional chest pain for several months
- 50 PY smoker
- Severe resting chest pain for 7 hrs
 - 타병원 경유 내원
- P/E 80/60 – 96 – 34 – 36.5°C
 - Inspiratory crackles on BLLF
- EchoCG; LM territory akinesia with EF 20%

타병원 ECG

Measurement Results:

QRS : 132 ms
 QT/QTcB : 470 / 459 ms
 PR : 150 ms
 P : 110 ms
 RR/PP : 1048 / 1045 ms
 P/QRS/T : 65/ -65/ 125 degrees
 QTD/QTcBD : 88 / 86 ms
 Sokolow : mV
 NK : 3

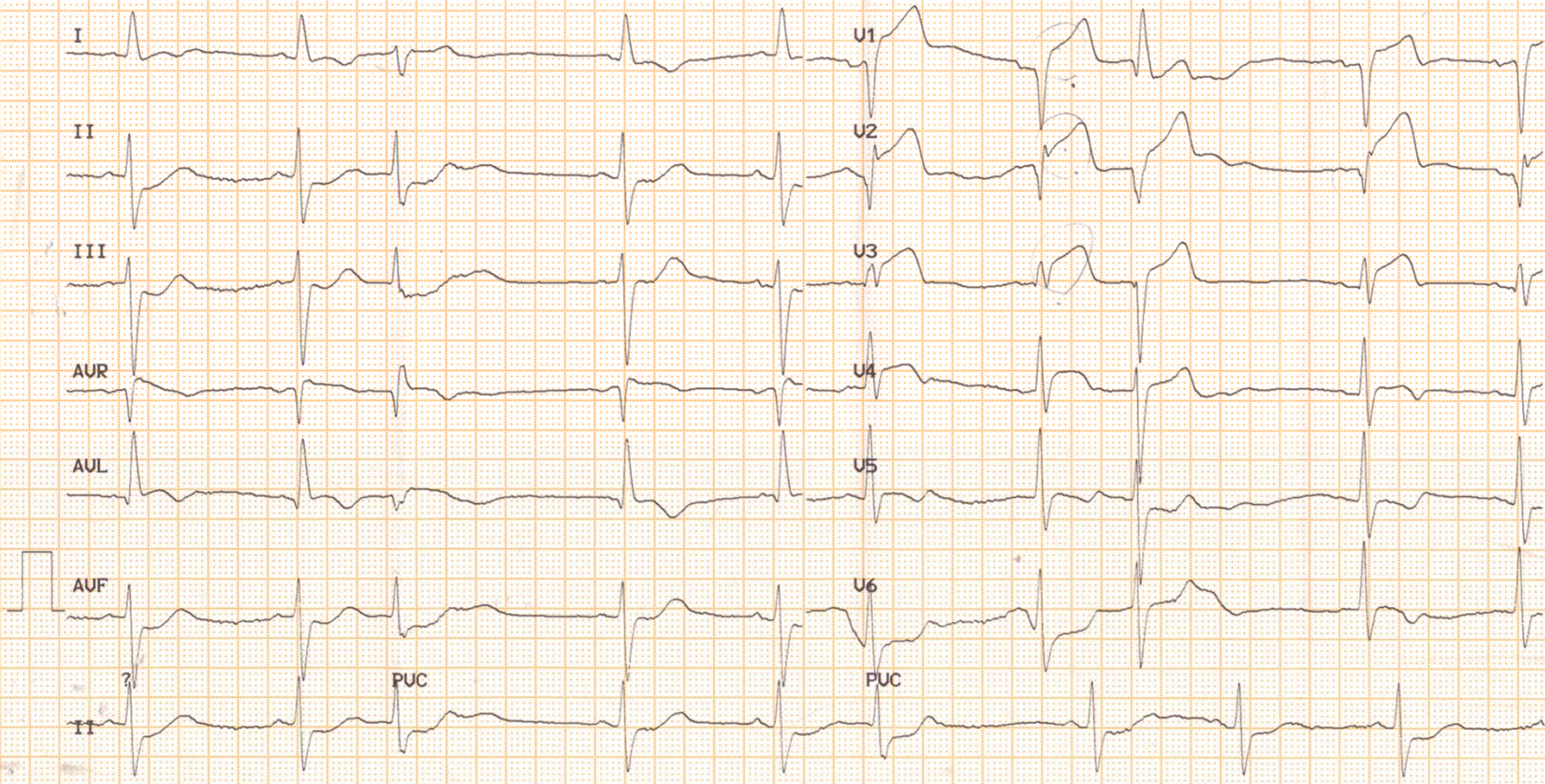


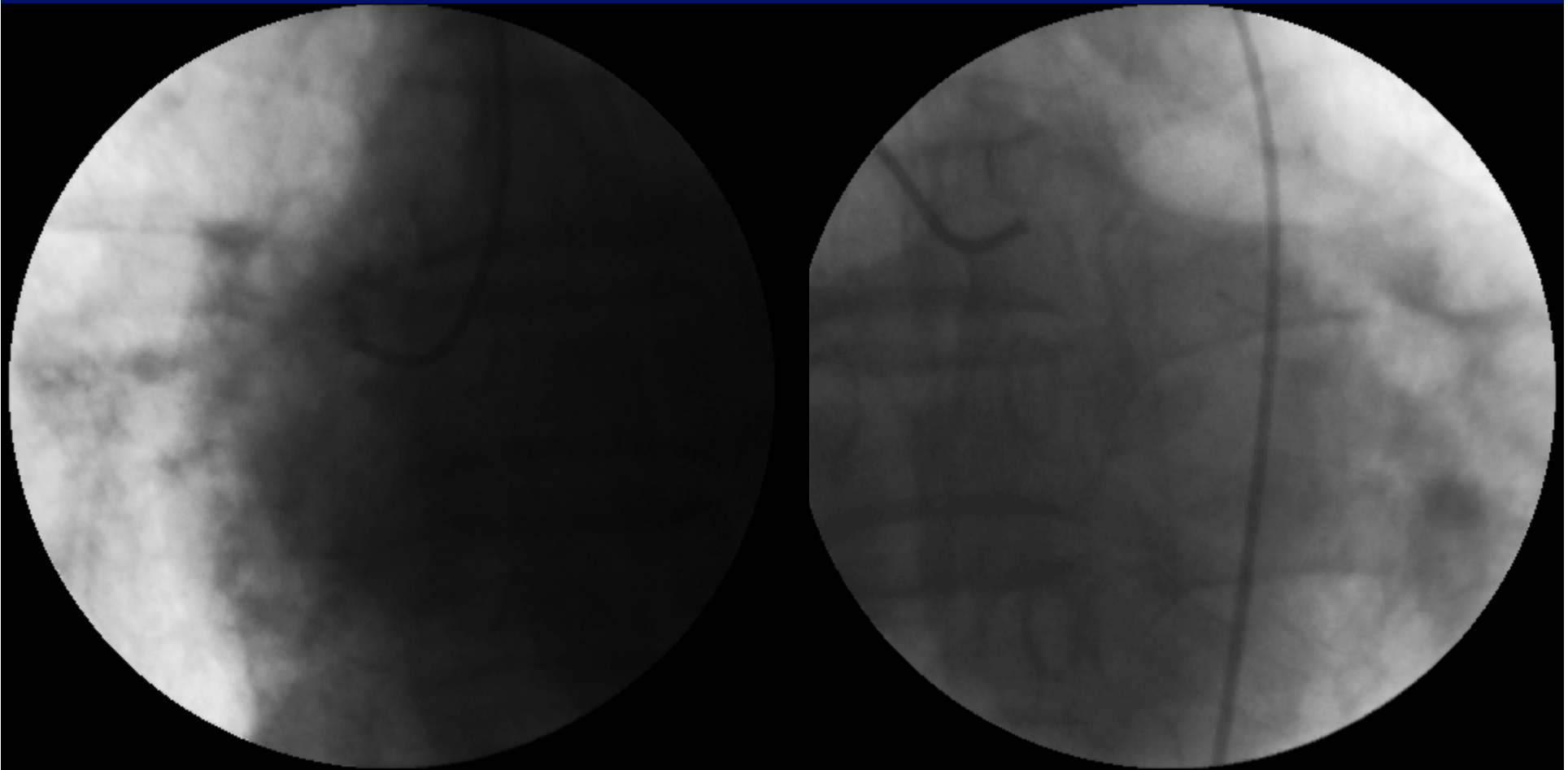
Interpretation:

< P
 < T
 < QRS

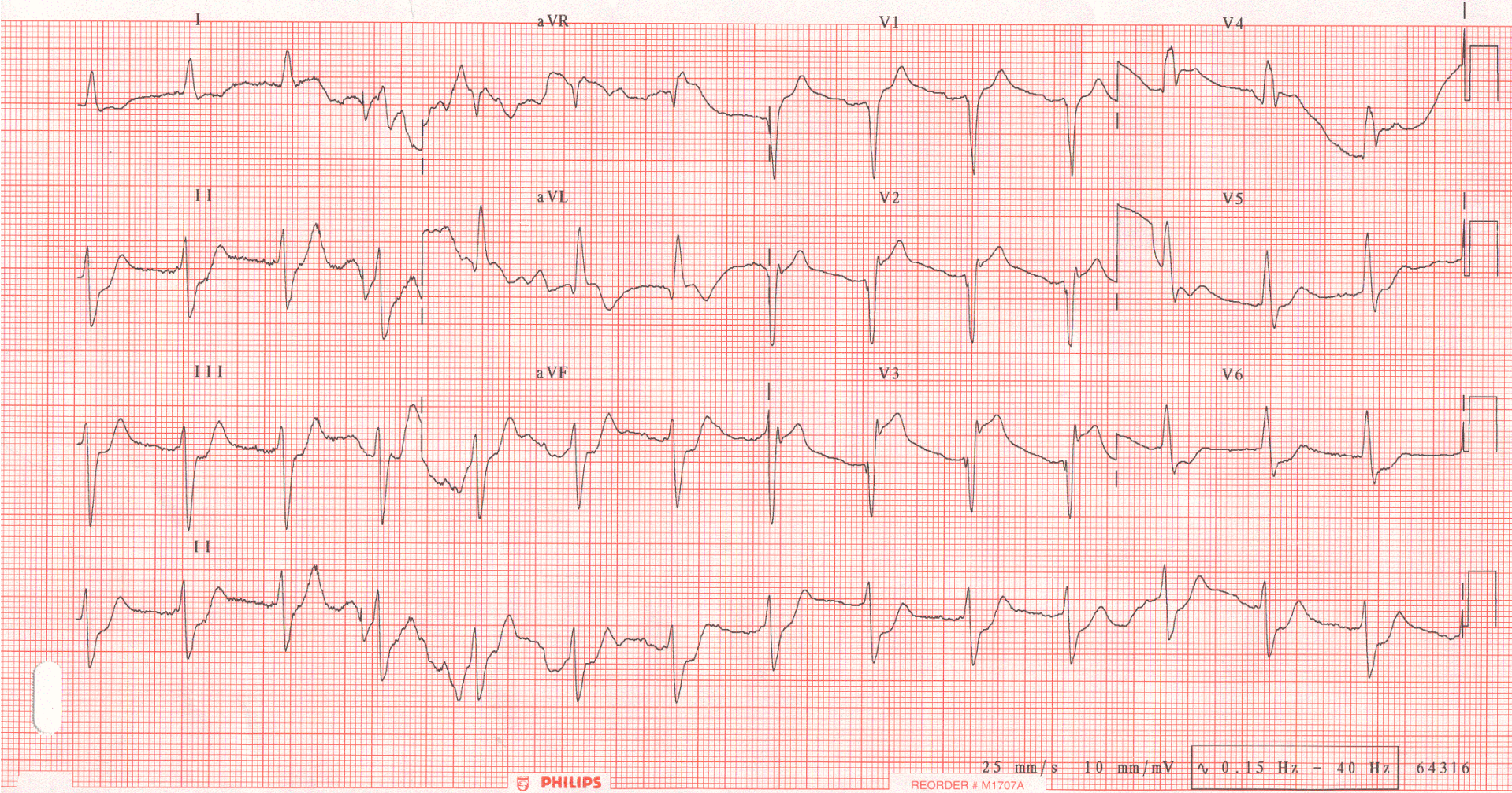
suspected left ventr. hypertrophy
 intraventricular block
 left anterior hemiblock
 occasional premature ventricular complexes
 Note ! insufficient similar beats
 probably abnormal ECG

Unconfirmed report.

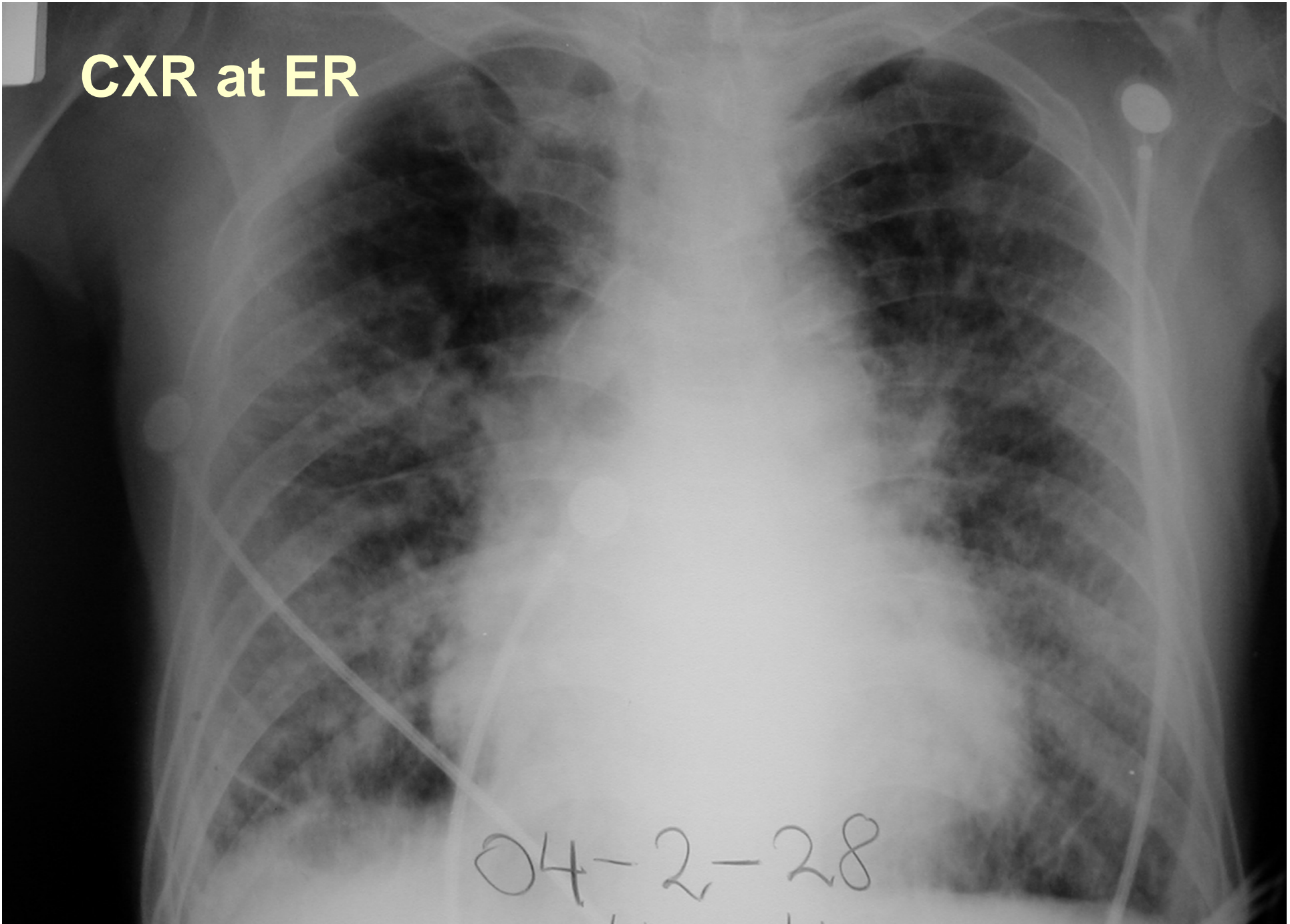




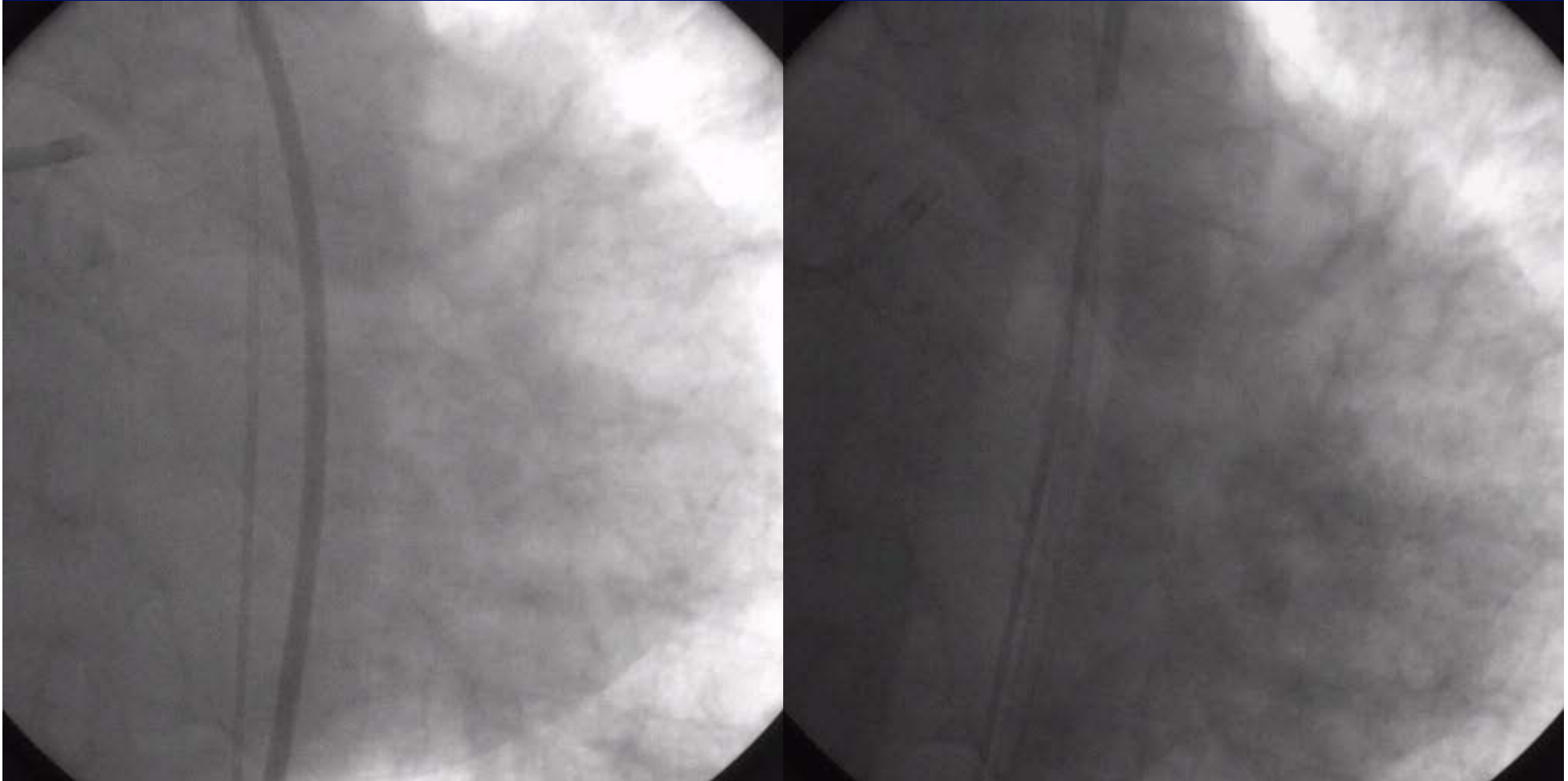
ECG at ER



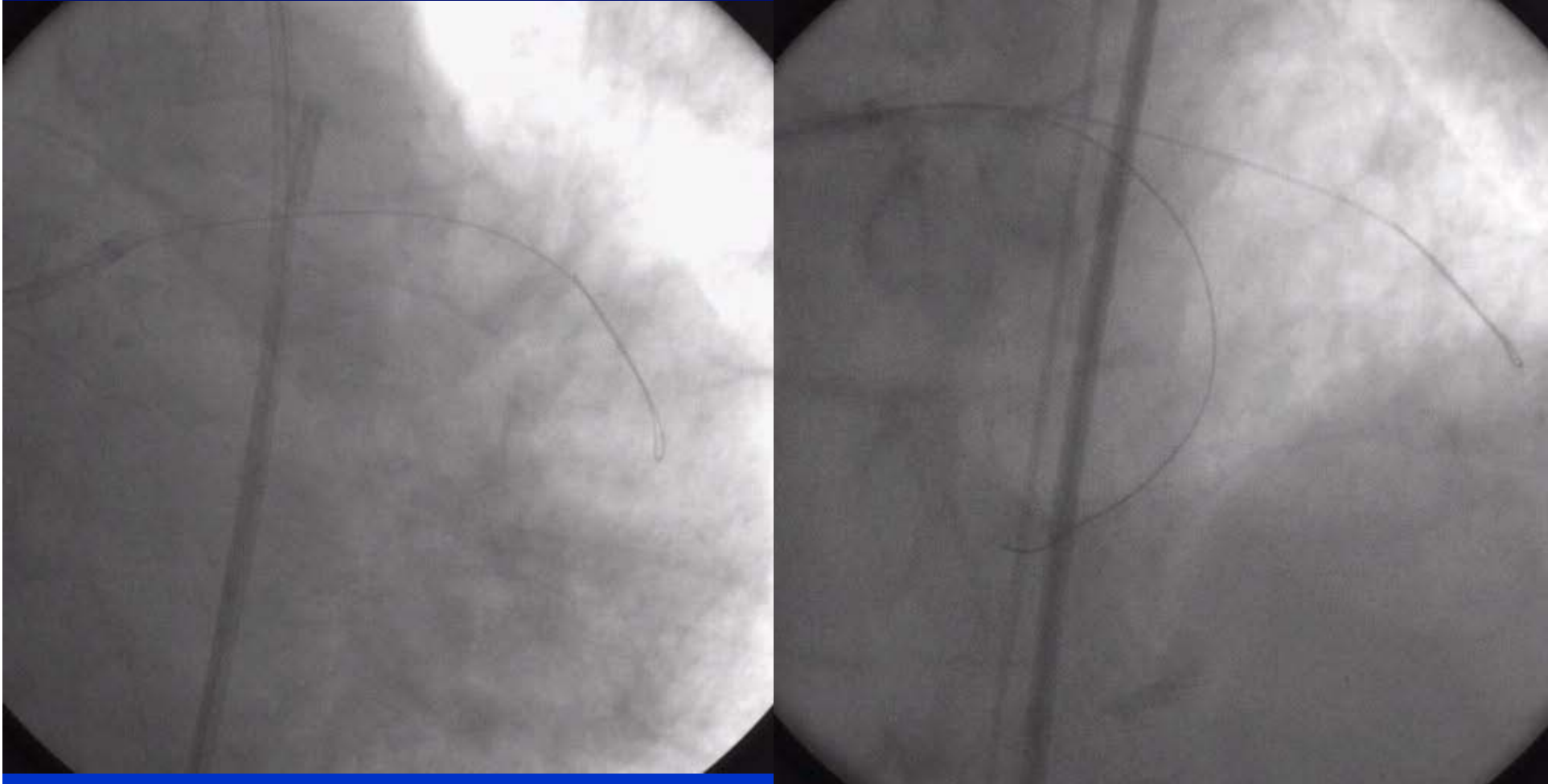
CXR at ER

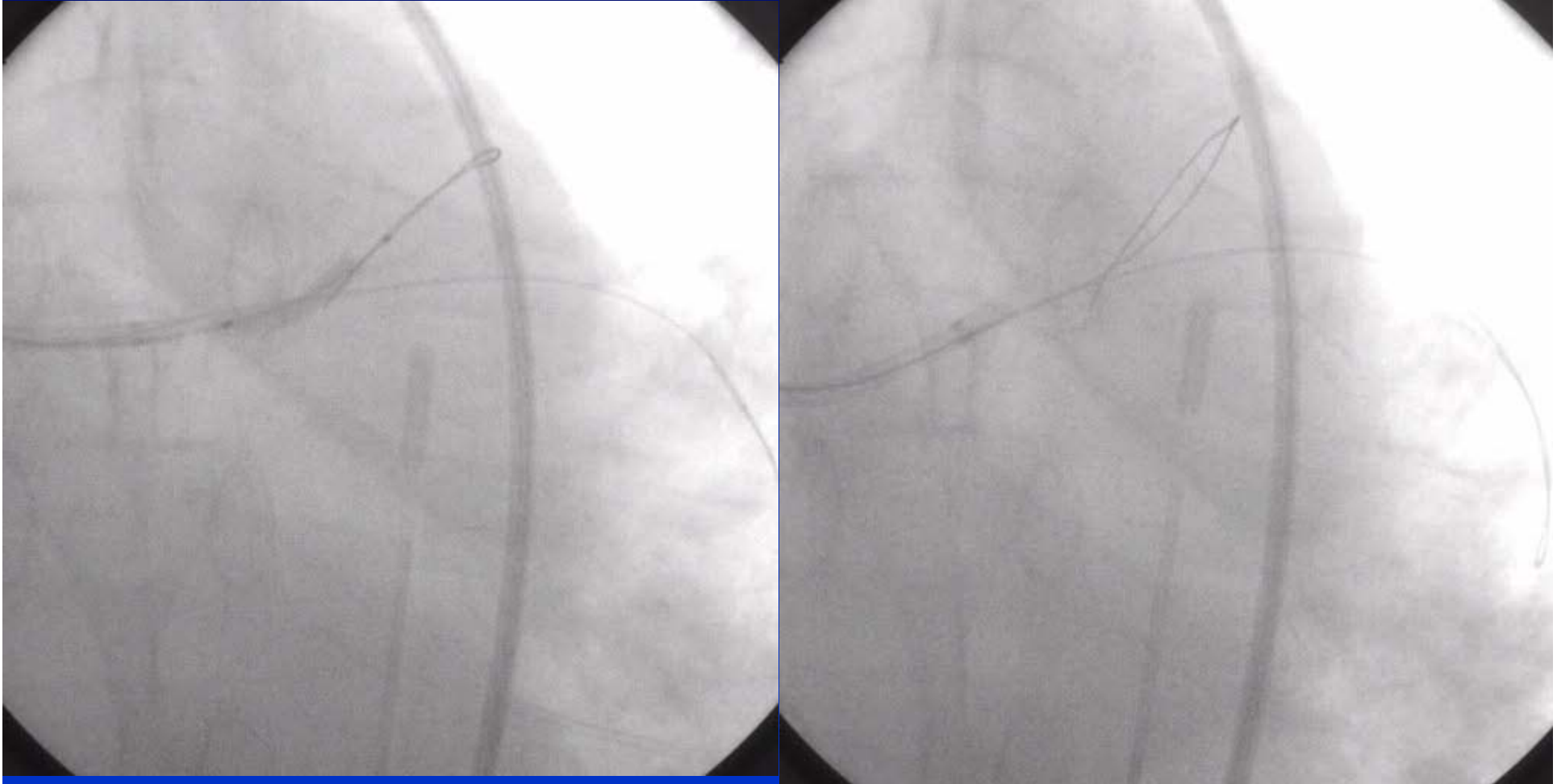


Patient intubated, IABP from left femoral access



8 Fr EBU 4



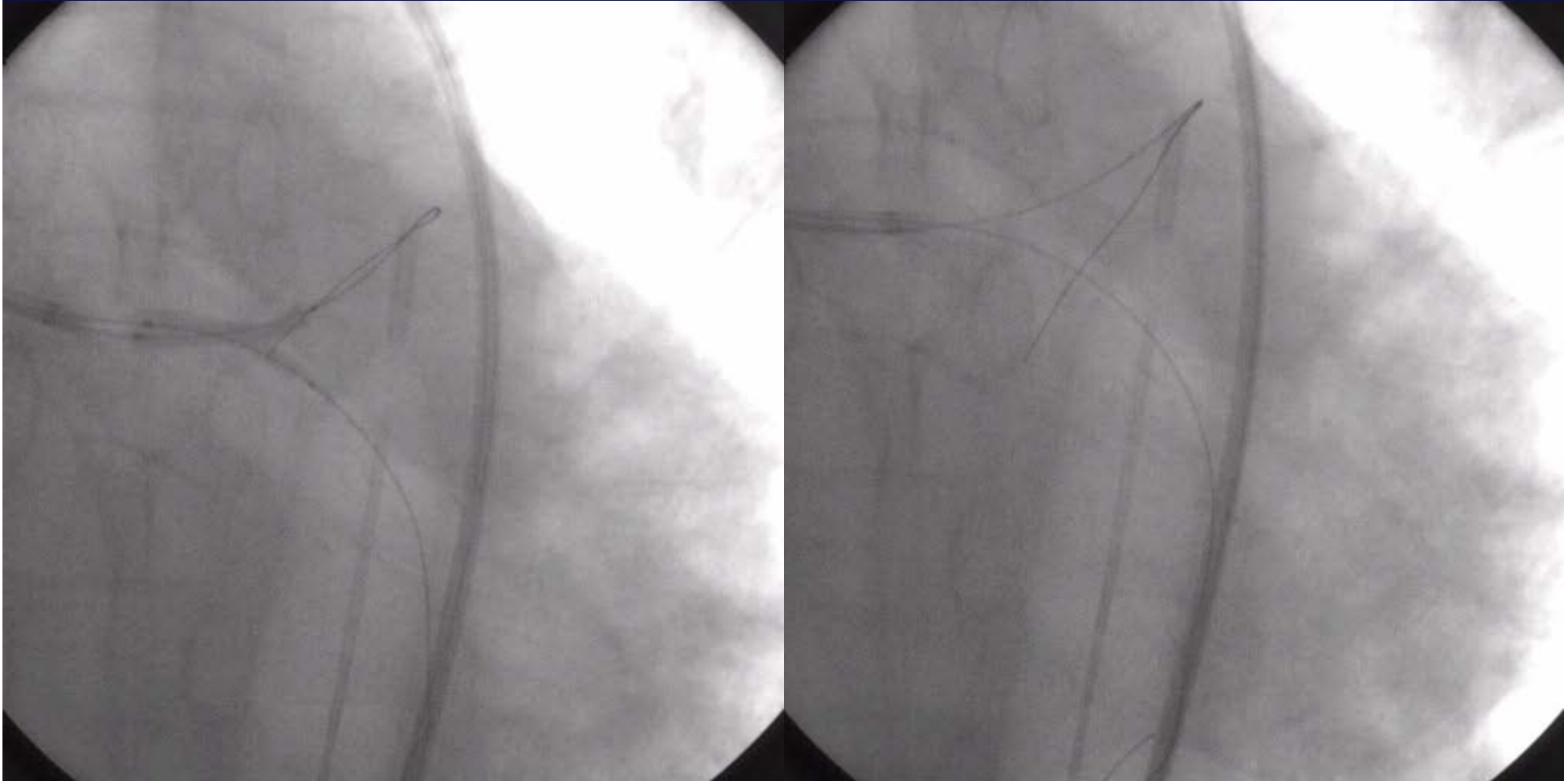


LM-pLAD Ballooning 3.0×20mm up to 10 atm

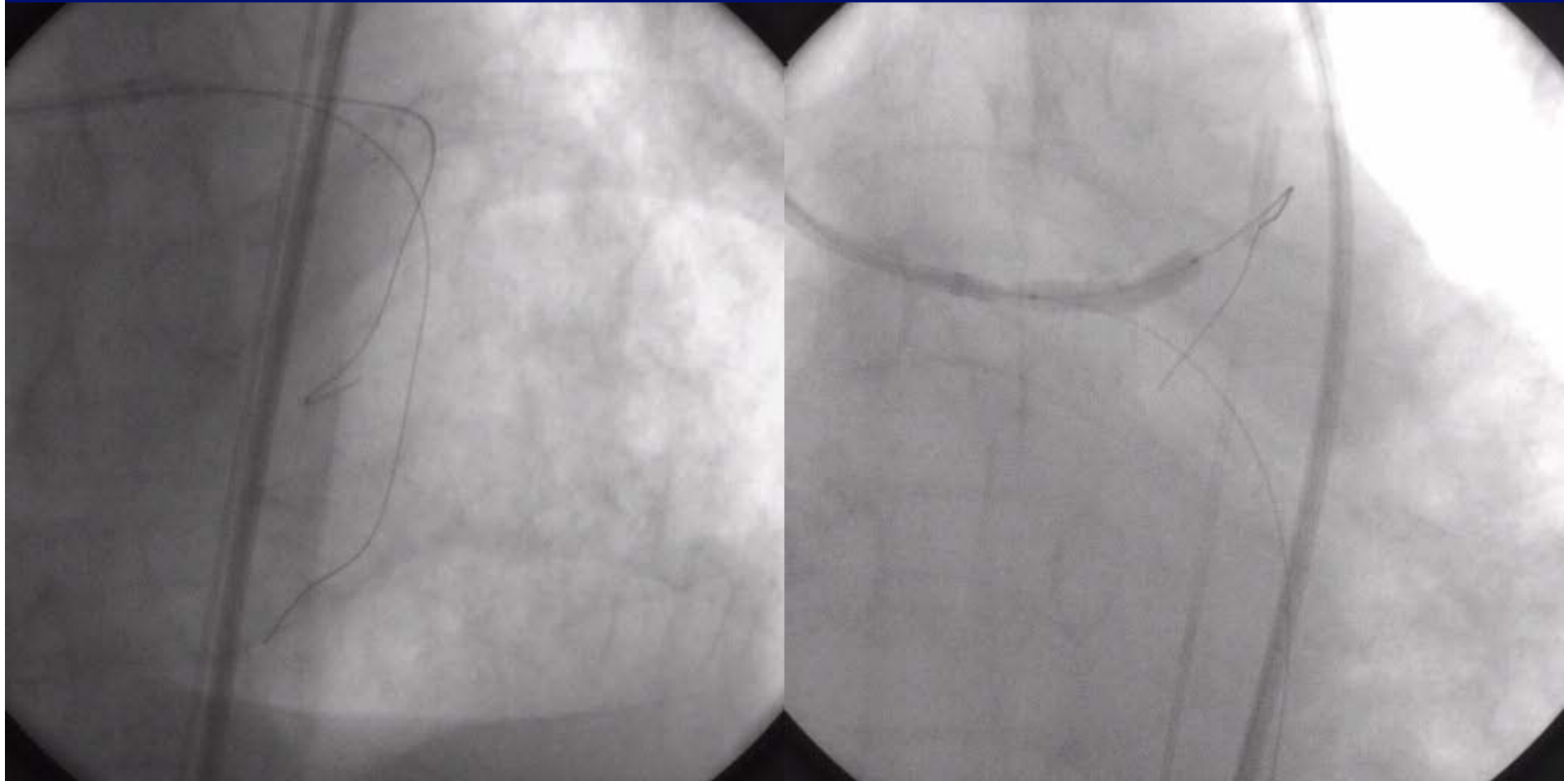
Cardiovascular Center in Chungnam National University Hospital



Two Vfib attacks → Defibrillation



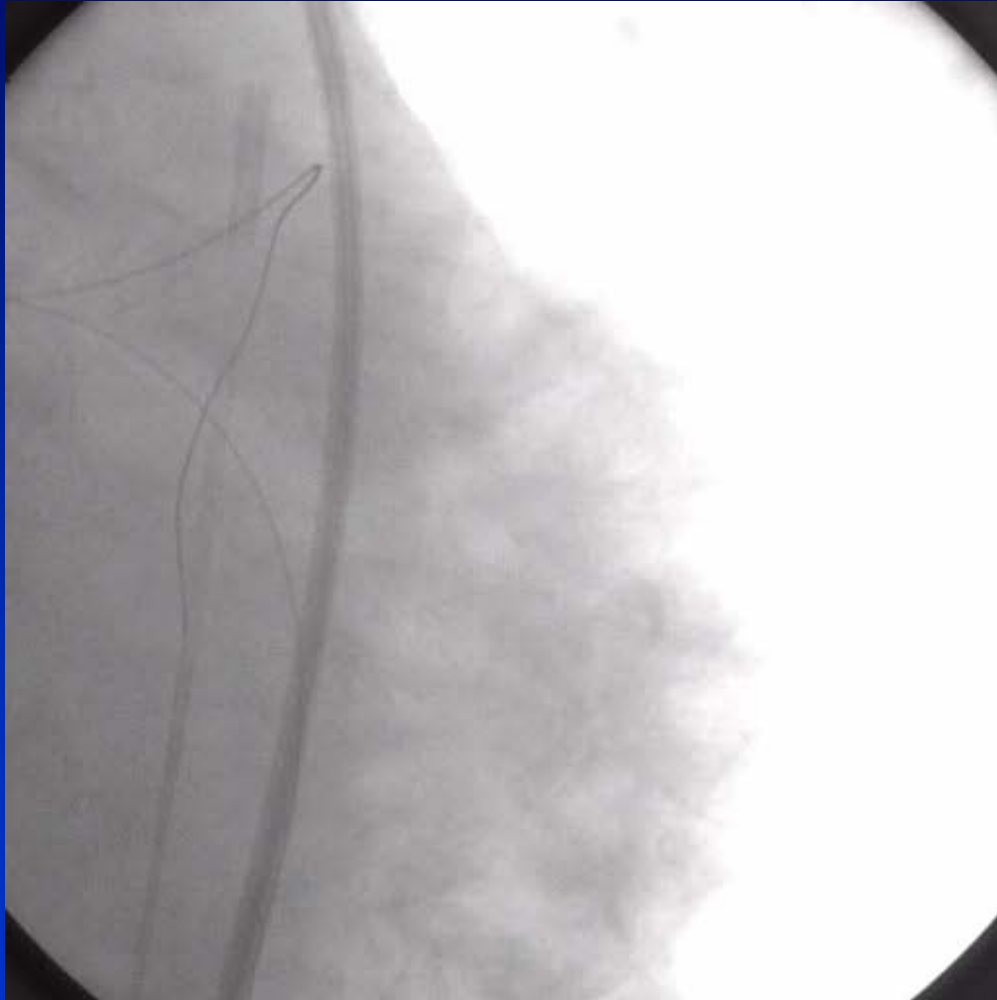
Kissing balloon 3.0 & 2.5 mm



Stenting 3.5x23mm at 14 atm

Cardiovascular Center in Chungnam National University Hospital

Final Angiogram



No RCA angiogram

Three times inflation

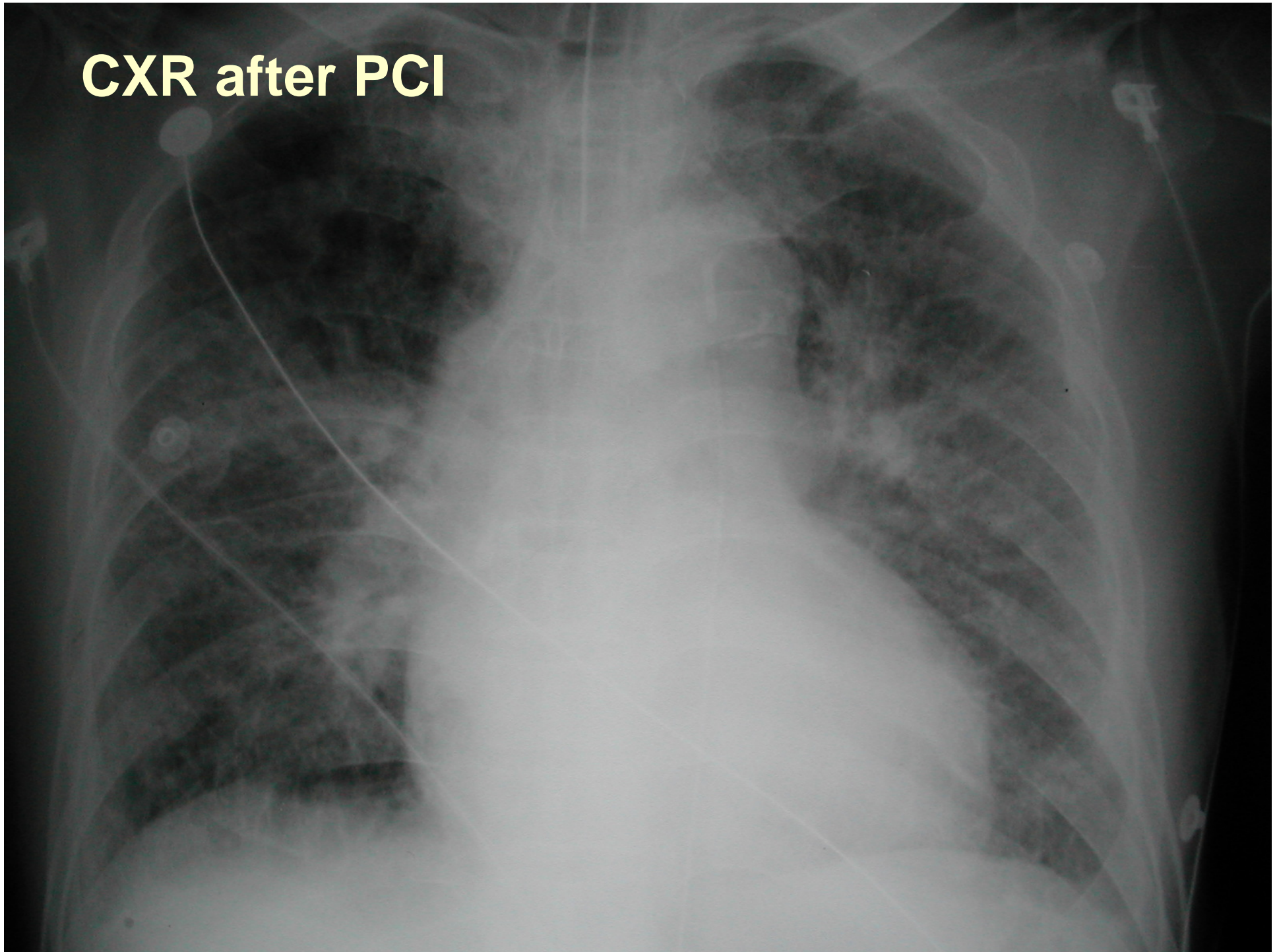
Eight Cine angiograms

No final cranial angio

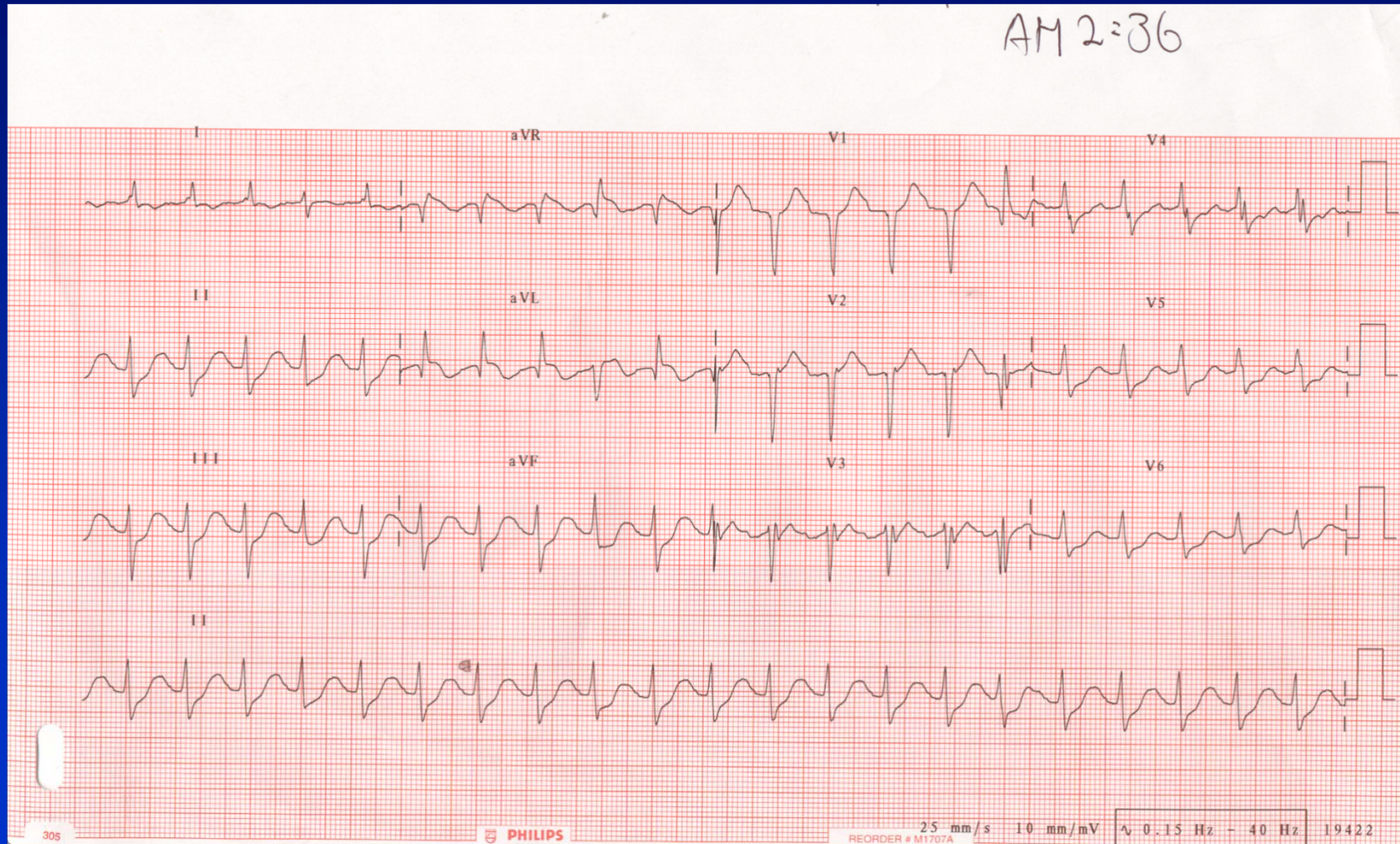
Didn't touch mLAD

≤ 60 cc contrast used

CXR after PCI



ECG after PCI



TOGAIN DELAYED



Good Morning Chart.

▷ 200 J EXTERNAL PADDLES YS-M 001

▷ 29 FEB 04 00:48:54 HR124 LEAD II AUTOGAI



Good Morning Chart.

YS-M 001



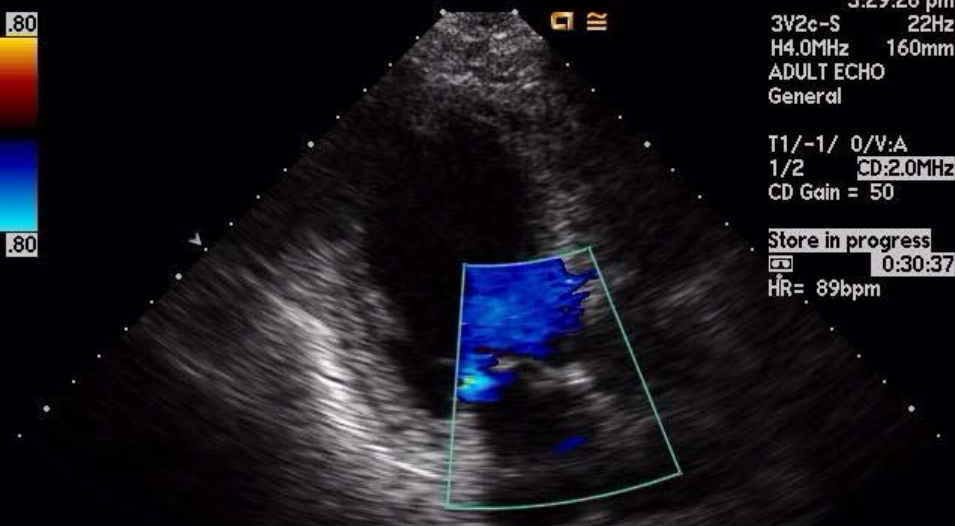
F/U Echocardiogram, 5 days after PCI

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CHUNGNAM UNIV. HOSPITAL

10 Mar 04

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CHUNGNAM UNIV. HOSPITAL

10 Mar 04

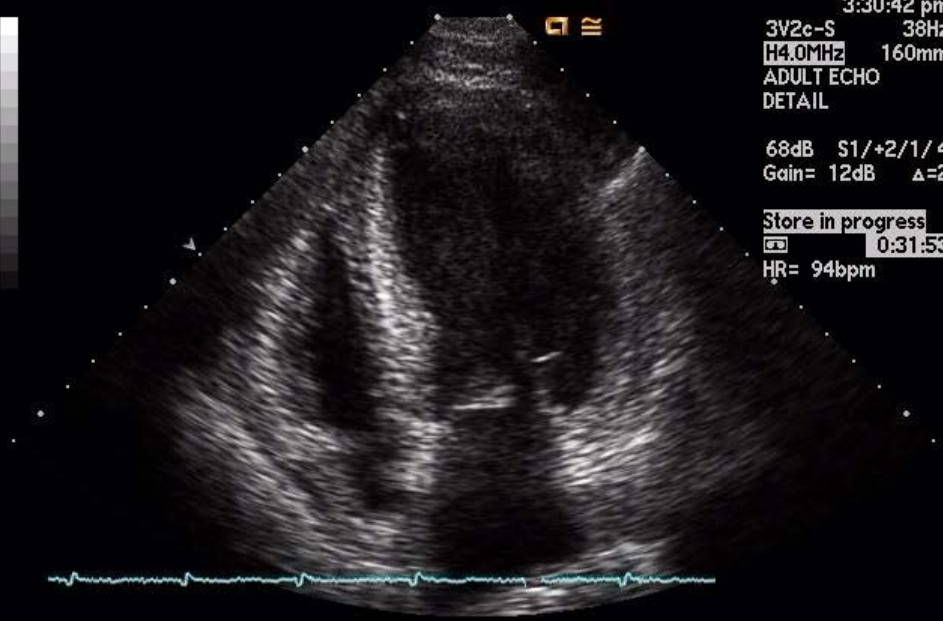


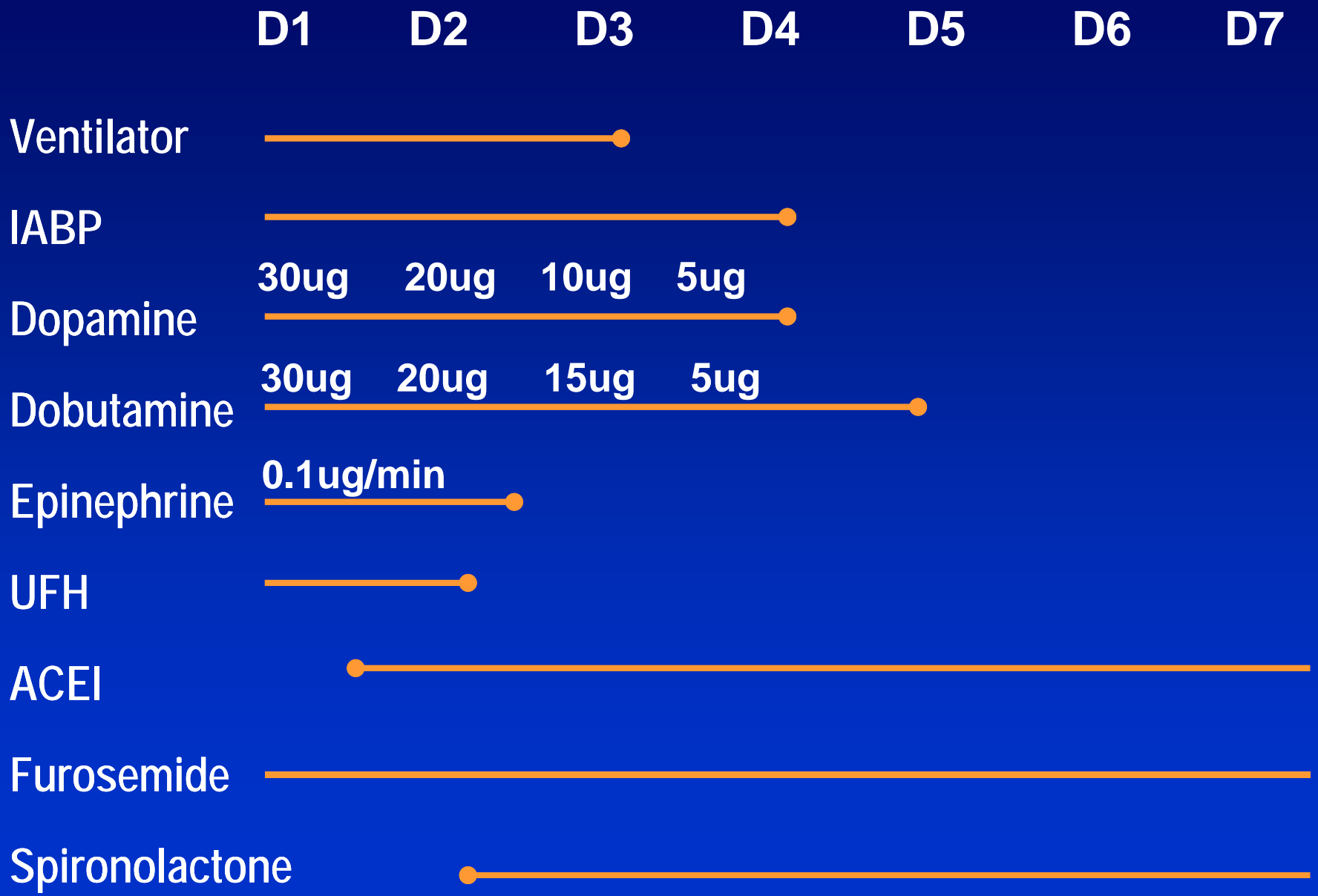
PARK IN BOK: 848841
CHUNGNAM UNIV. HOSPITAL

10 Mar 04

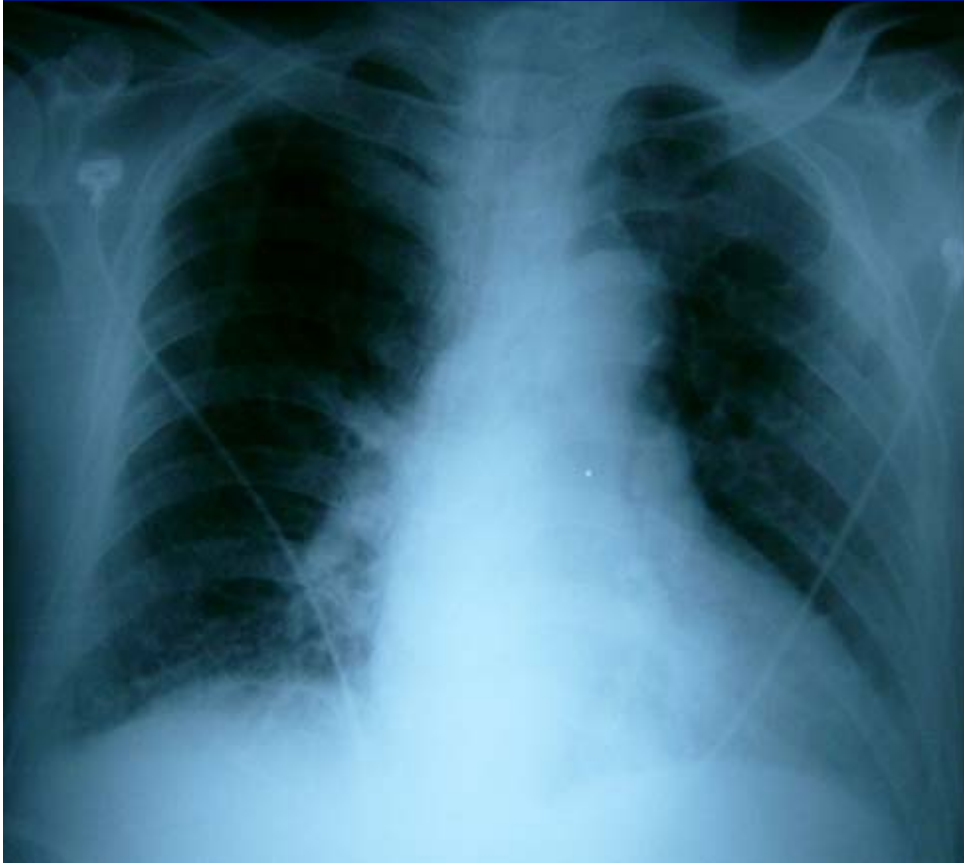
PARK IN BOK: 848841
CHUNGNAM UNIV. HOSPITAL

10 Mar 04





CXR FU

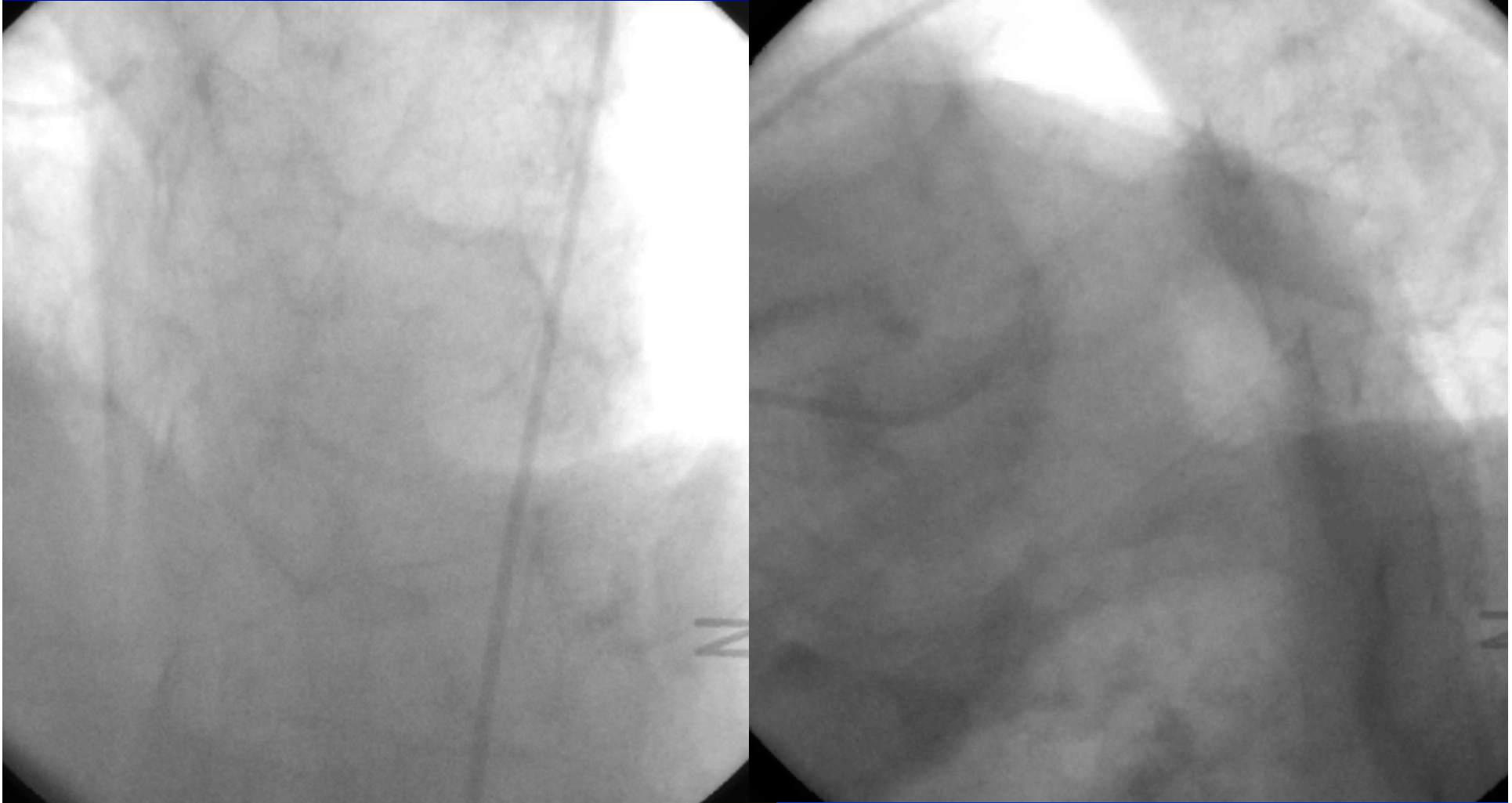


10 days

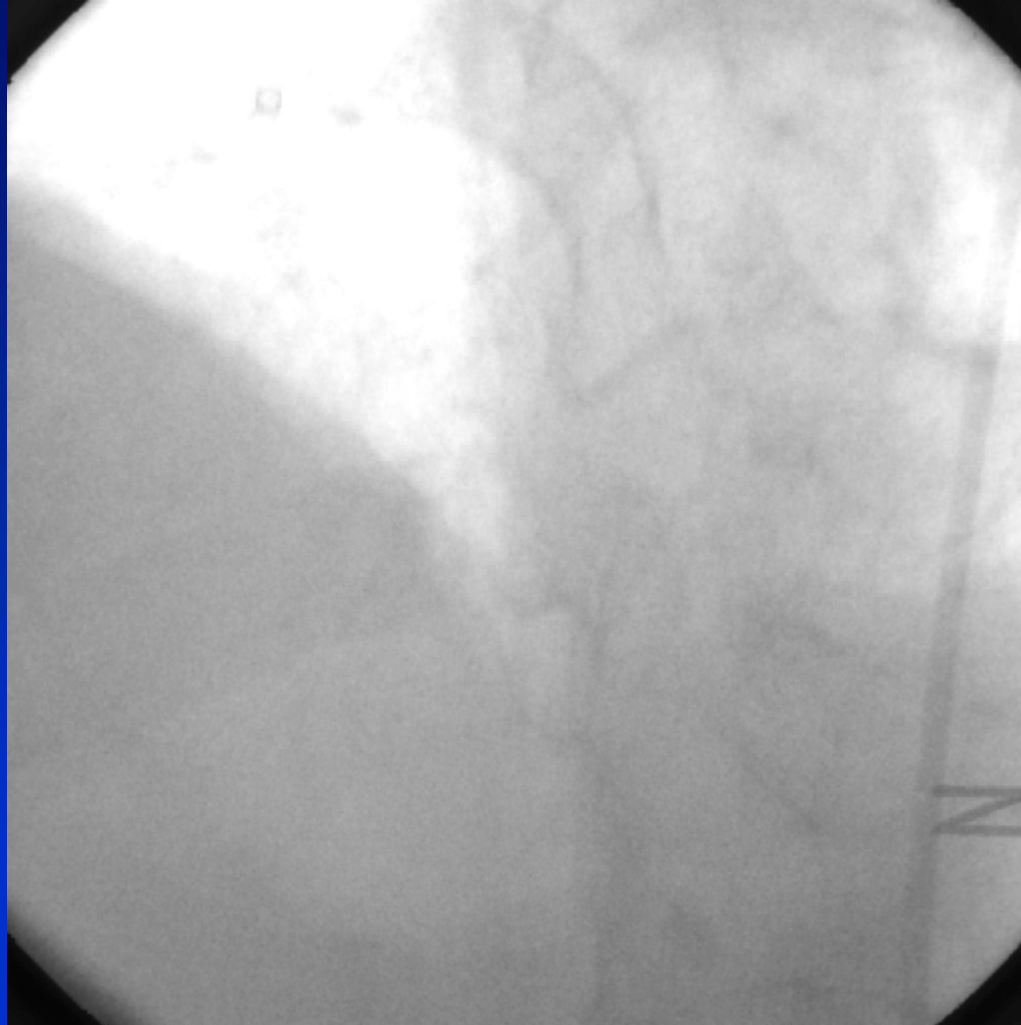


4 weeks

FU Angiogram in 8 months



FU Angiogram in 8 months mLAD stenting



Well being for 8 yrs with DOE Fc II

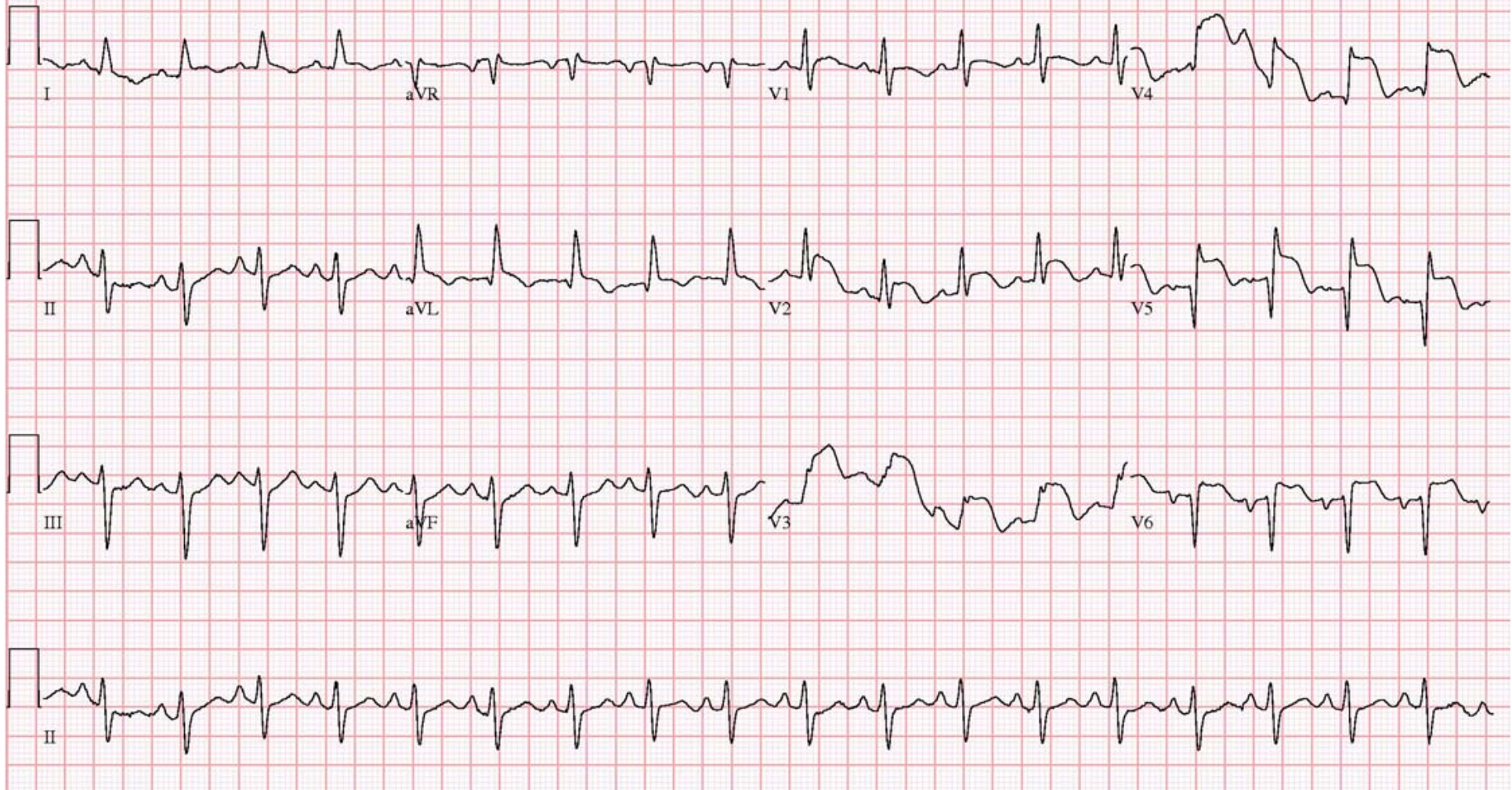
CASE 3

Primary PCI for pLAD STEMI with Overt Pulmonary Edema

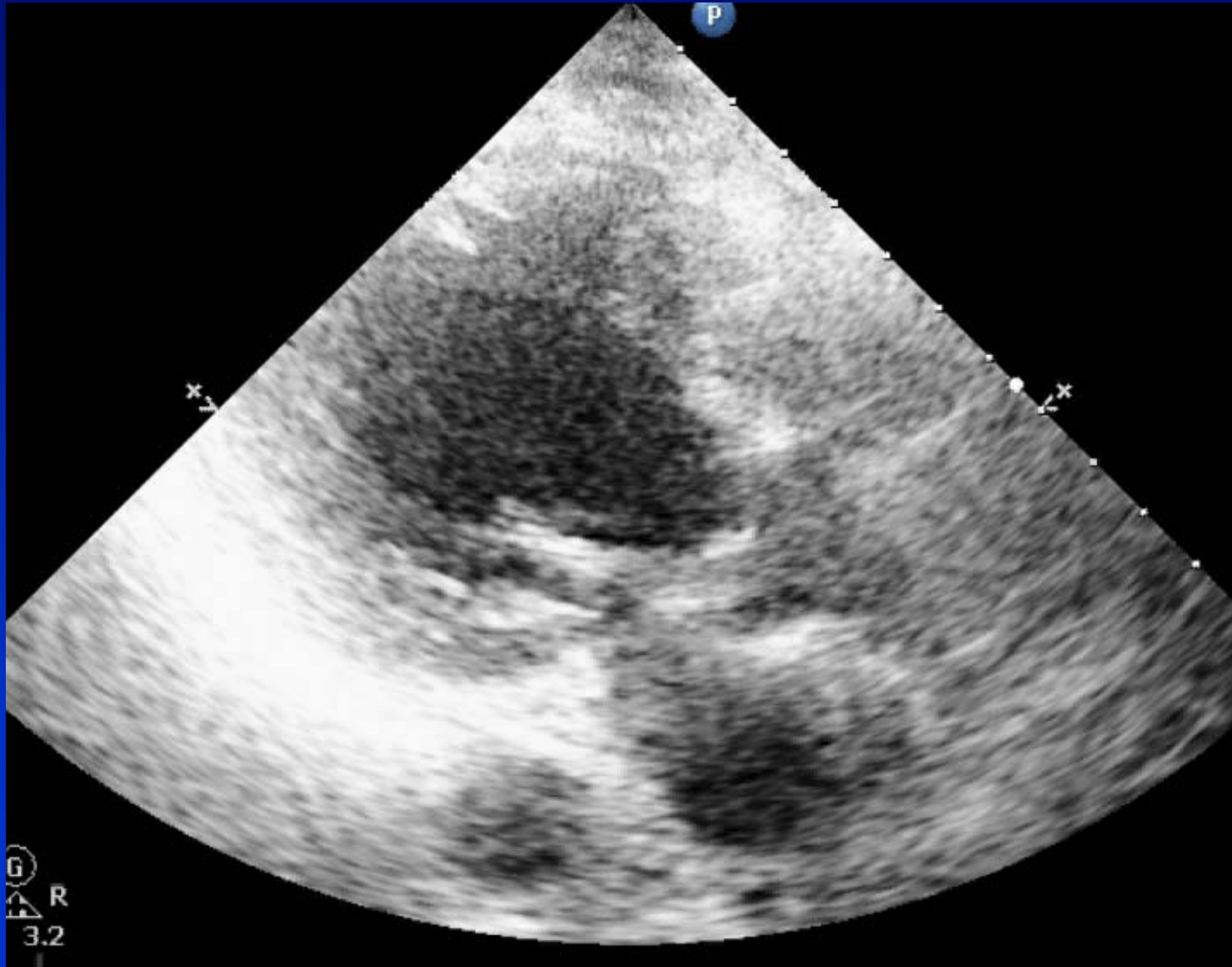
- 87세 여자
- 40 PY, HTN intermittently treated
- DOE for several yrs
- Anterior chest pain and dyspnea for 12 hrs
- P/E 78/54 – 114 – 36 – 35.8°C

Inspiratory crackles on BLLF

ECG

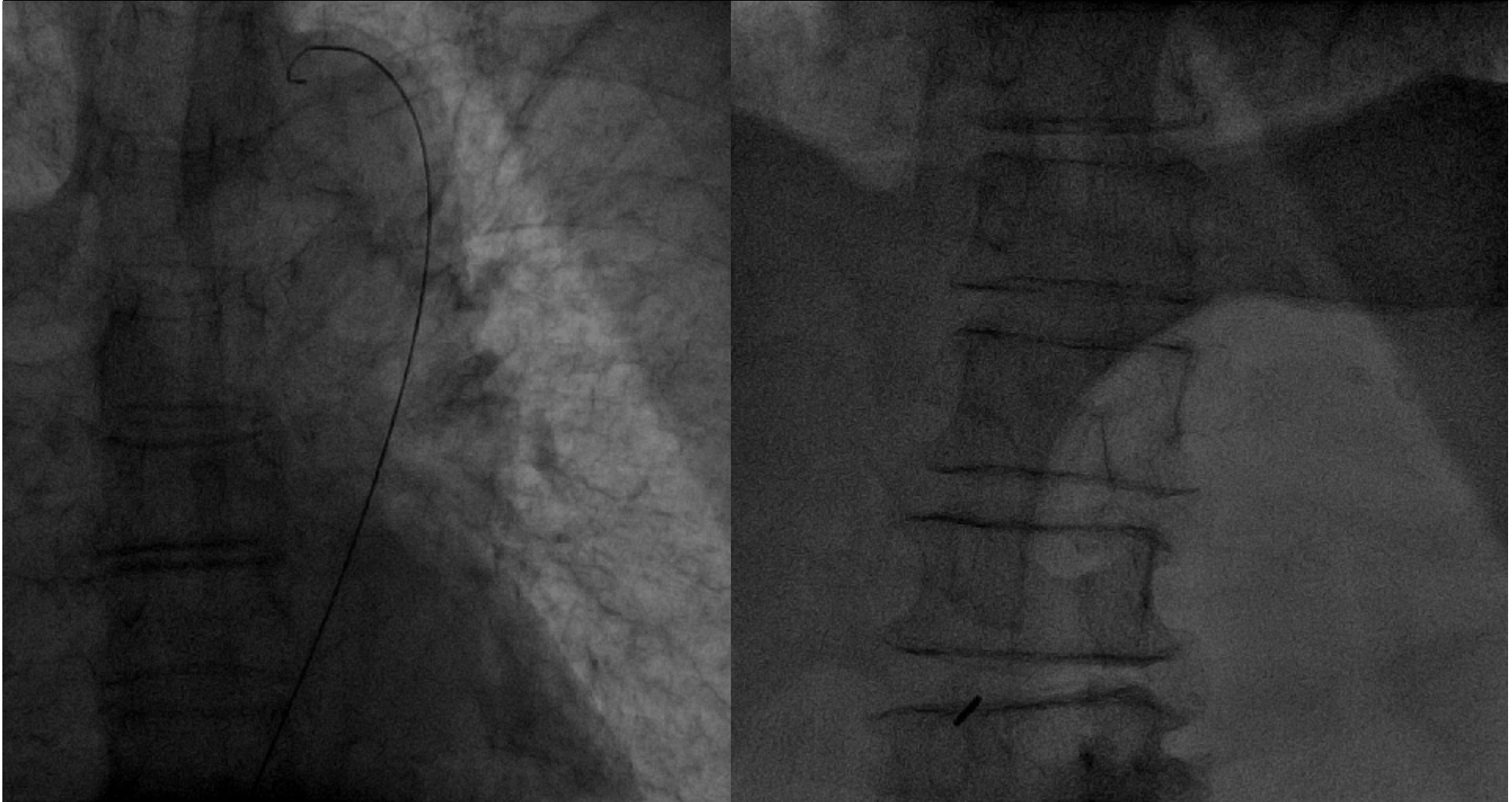


TTE at ER



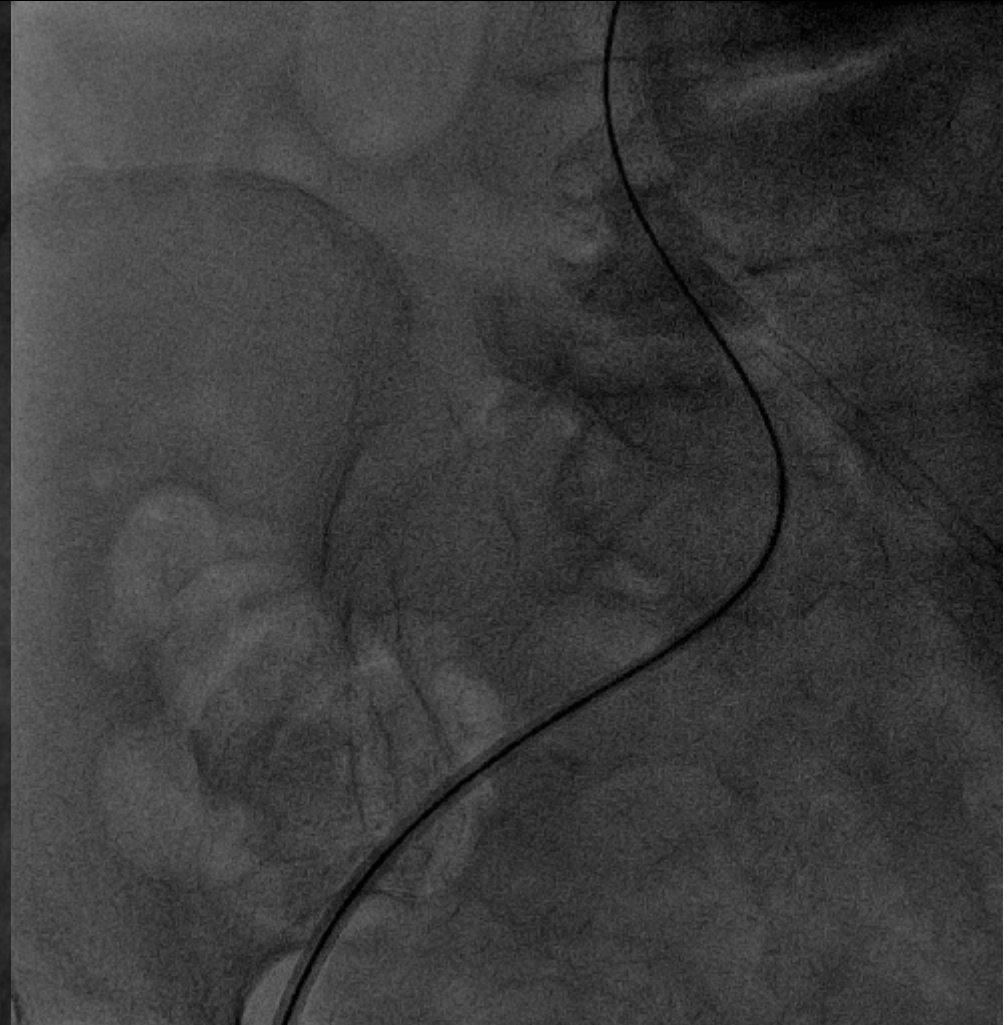
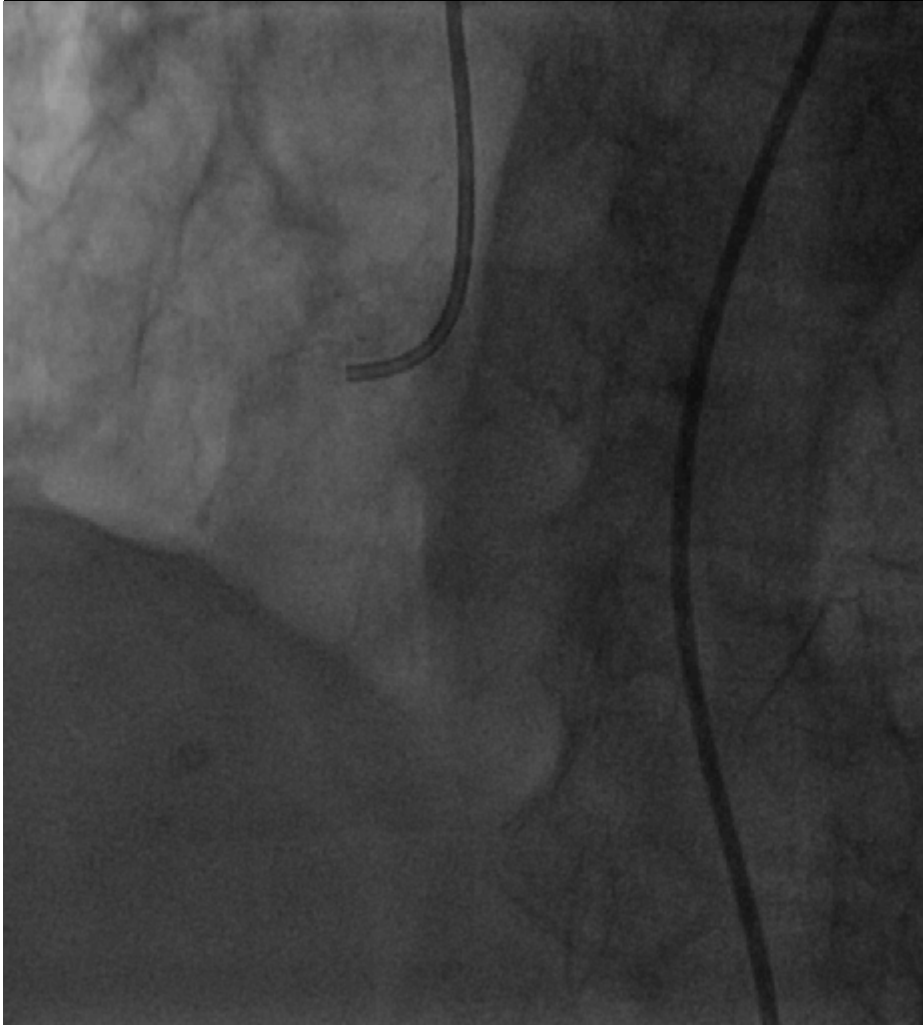


Tortuous Aorta, IABP from Left Femoral Artery

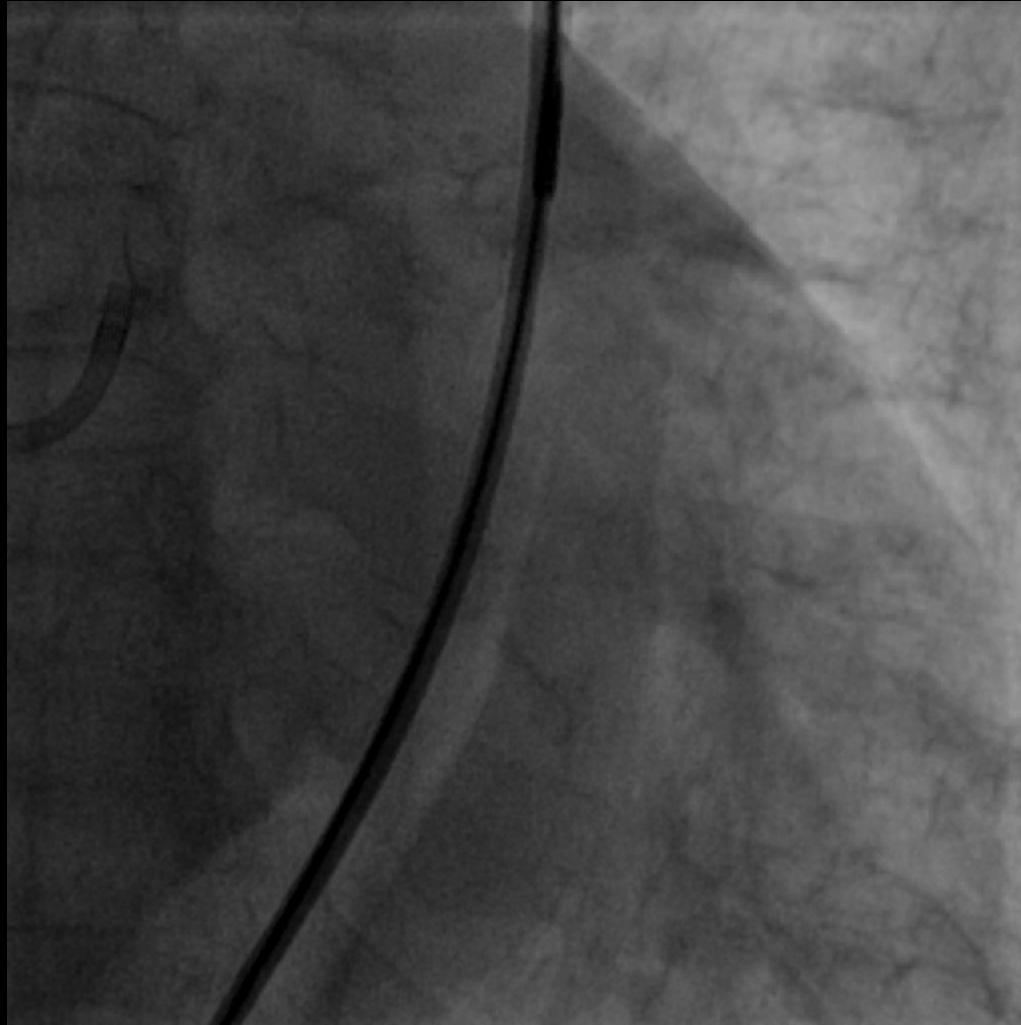


RCA Angiogram

Long Femoral Sheath

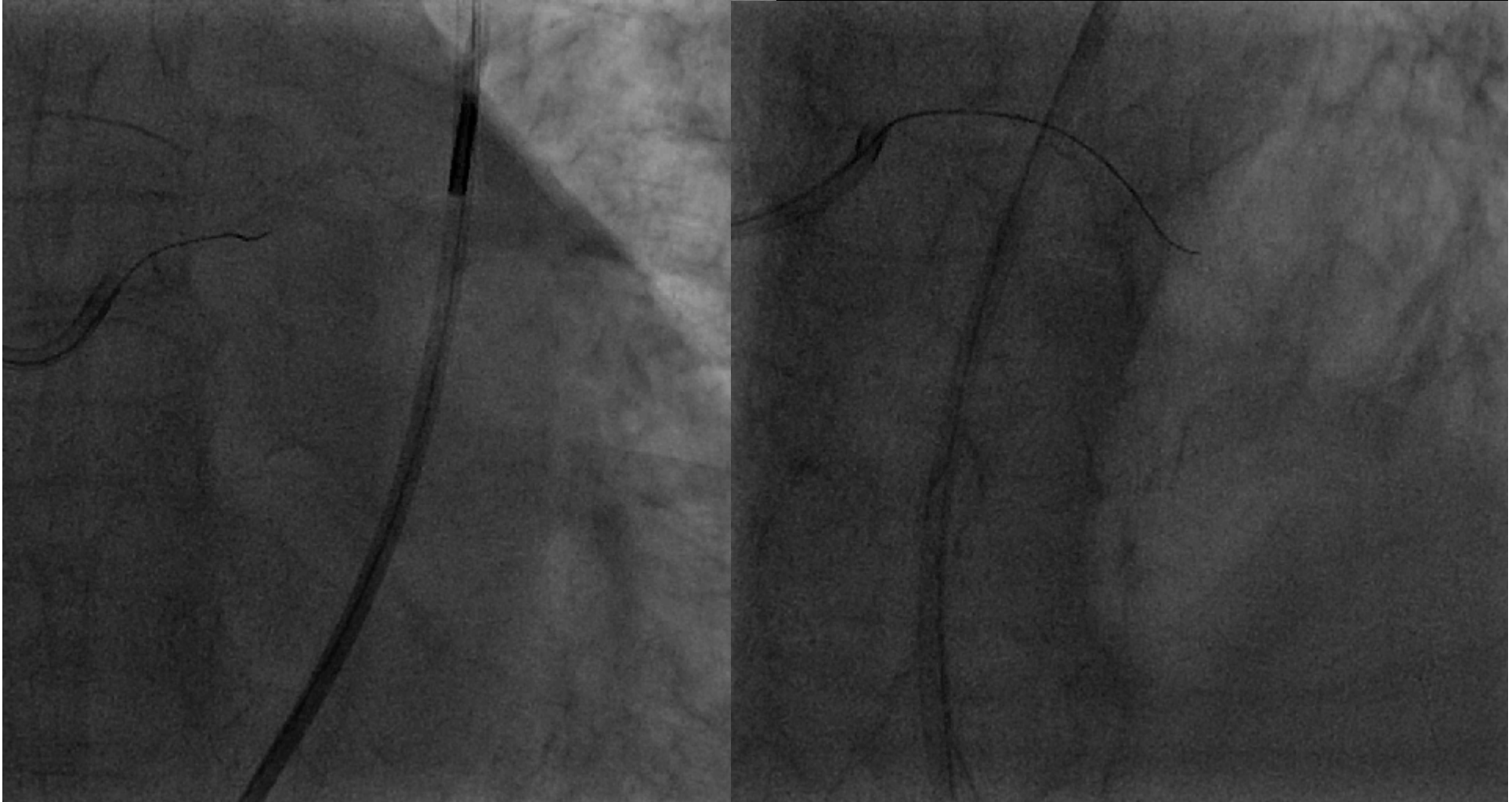


Occluded pLAD



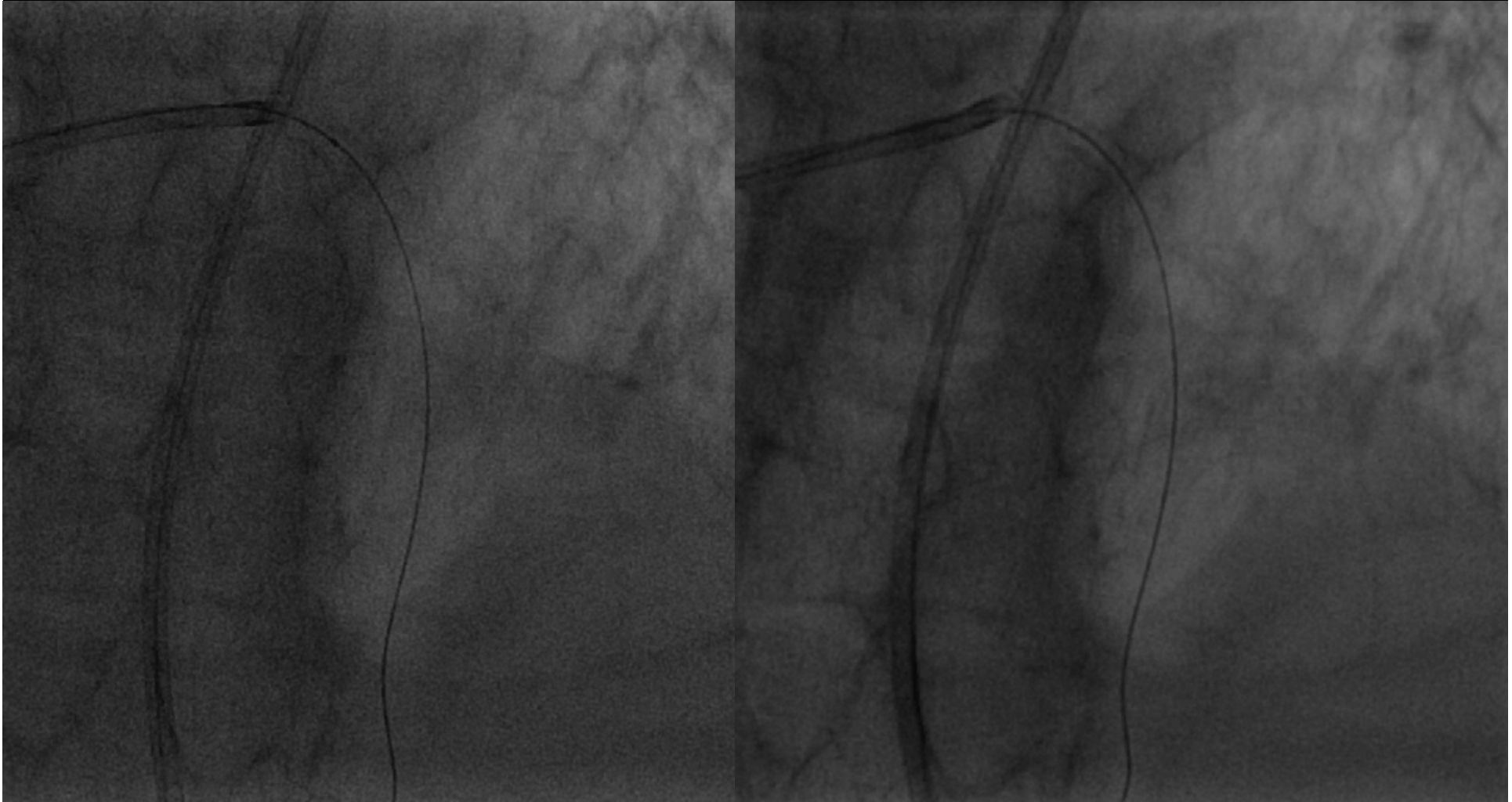
No cranial view

LAD wiring



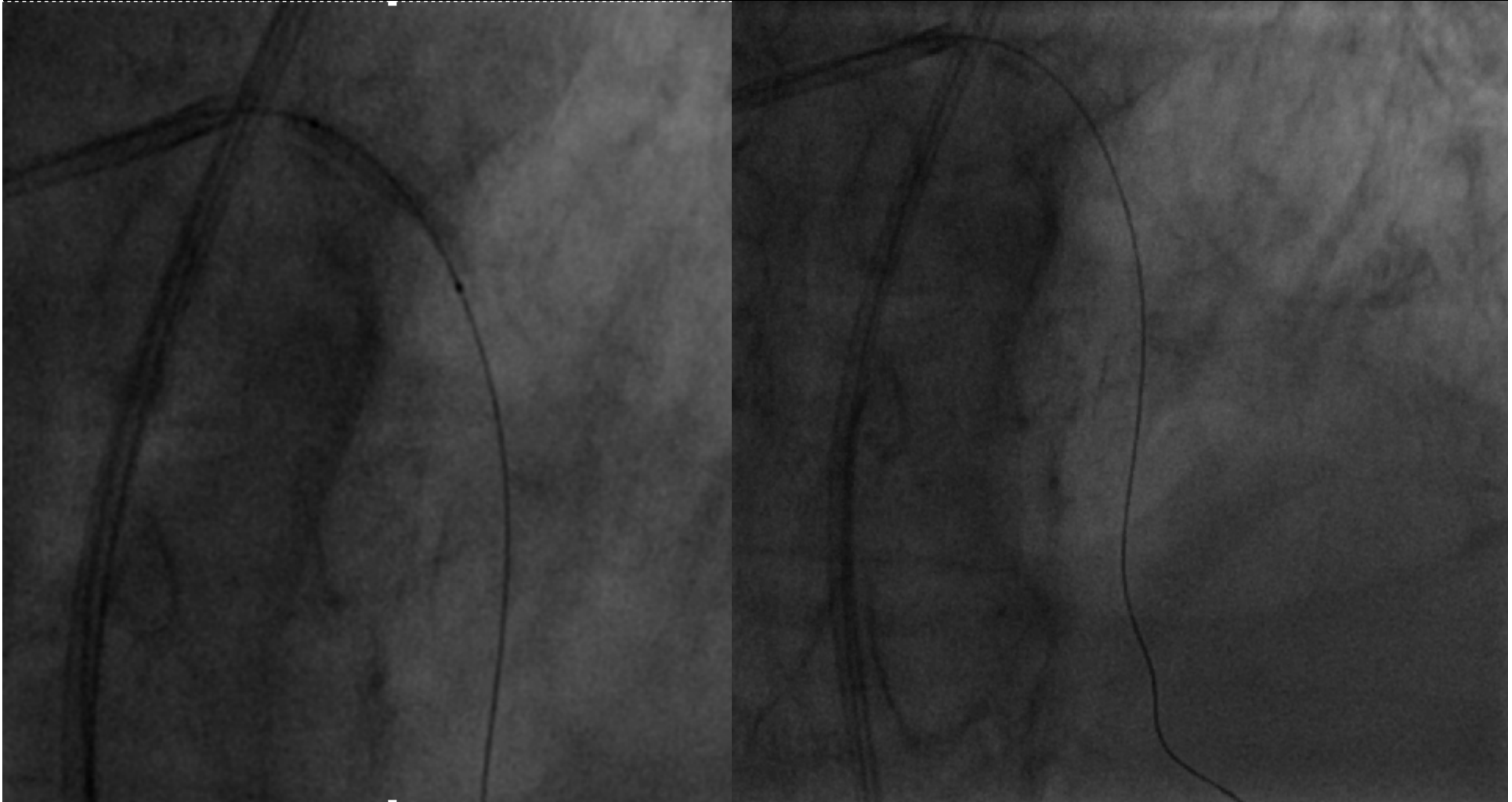
No contrast study for wiring

LAD suction



Suction followed by angiogram

LAD predilation



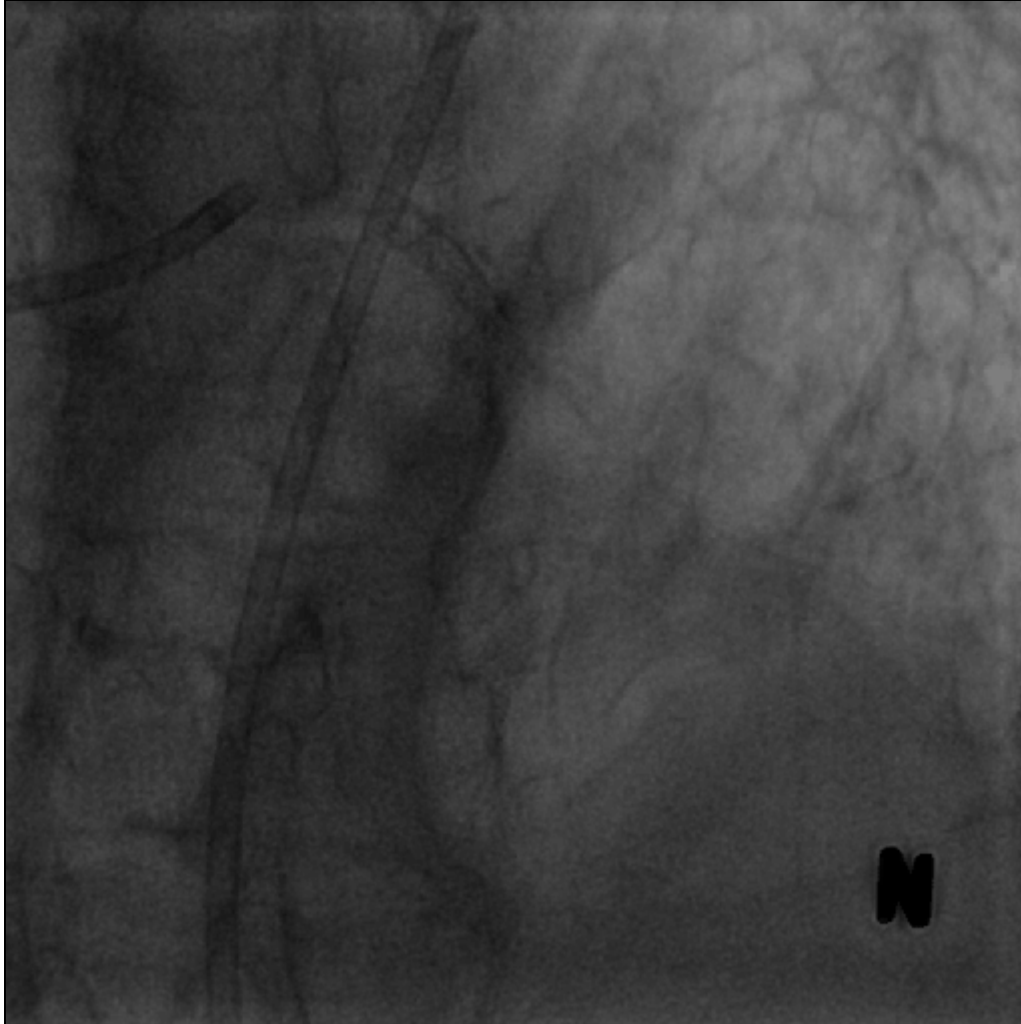
2.5x20 mm balloon, 10 atm

LAD stenting



3.0x16 mm PROMUS, 12 atm

Final angiogram



No baseline cranial angio

Suction followed by

Ballooning and Stenting

Nine cine angiograms

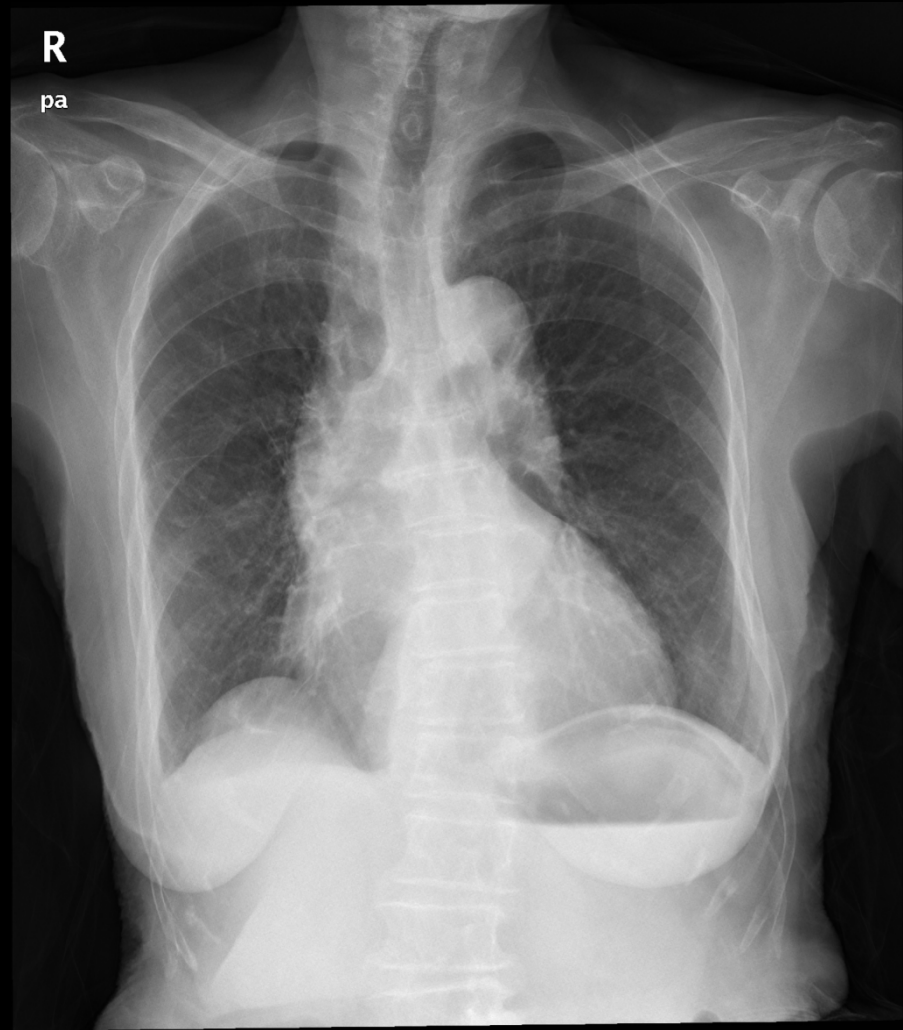
Three additional test inj.

No final caudal angio

Didn't touch mLAD

≤ 50 cc contrast used

Discharged in 8th day



2012-03-27 (심장내과)

외래경과 : 심장내과 경과기록 외래

편집

소견 및 계획 >

S

Anterior STEMI, severe LV dysfunction, iCMP and CHF

-> Primary stenting, pLAD 2012 3

COPD

Smoking

HTN

퇴원 후 첫 방문
숨찬 것 좋아졌다.
기운이 좀 없다.

O

106/72-66

CXR OK

P

이뇨제 감량

45일

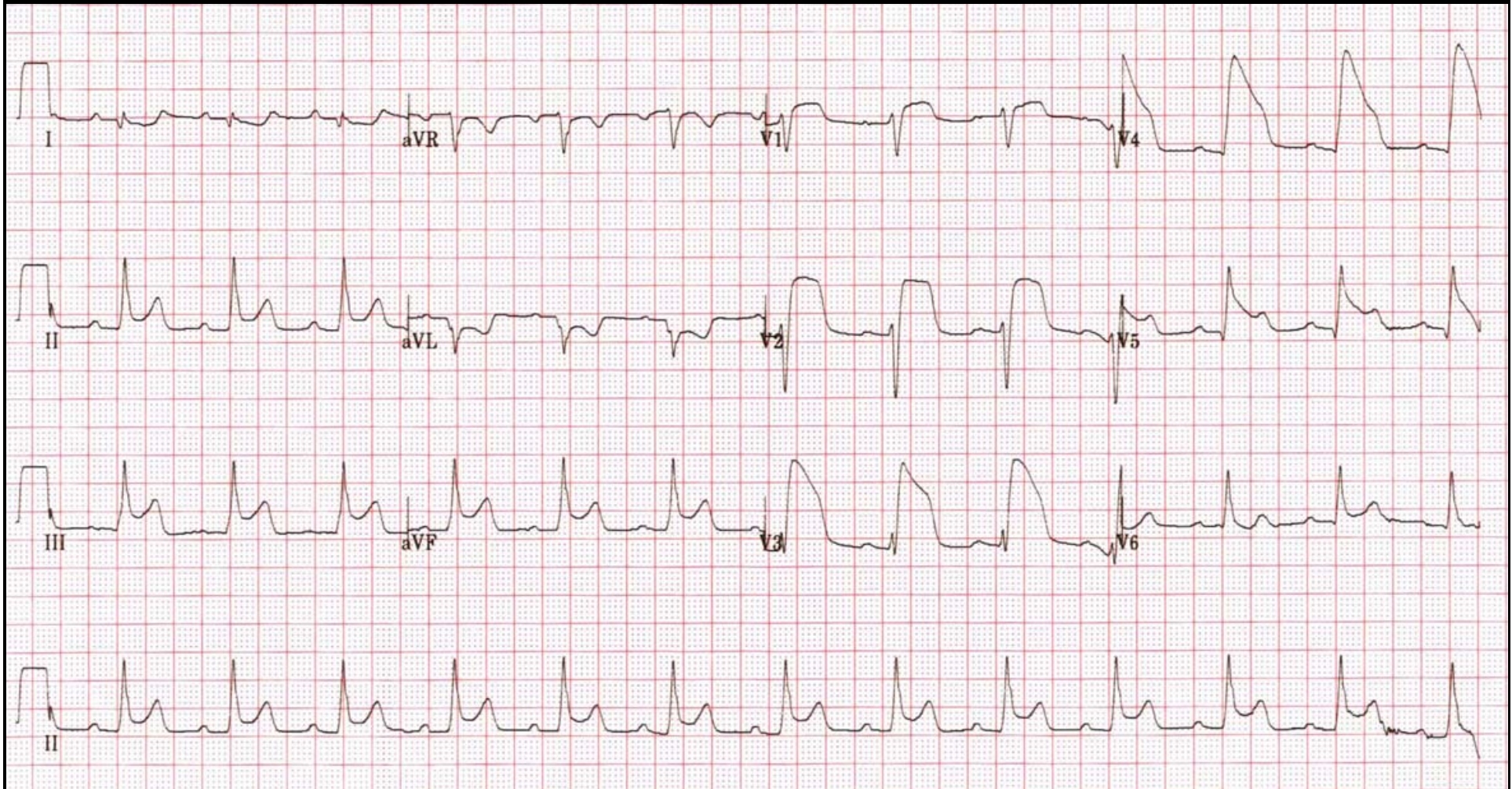
혈액검사/심전도/엑스선 추적

CASE 4

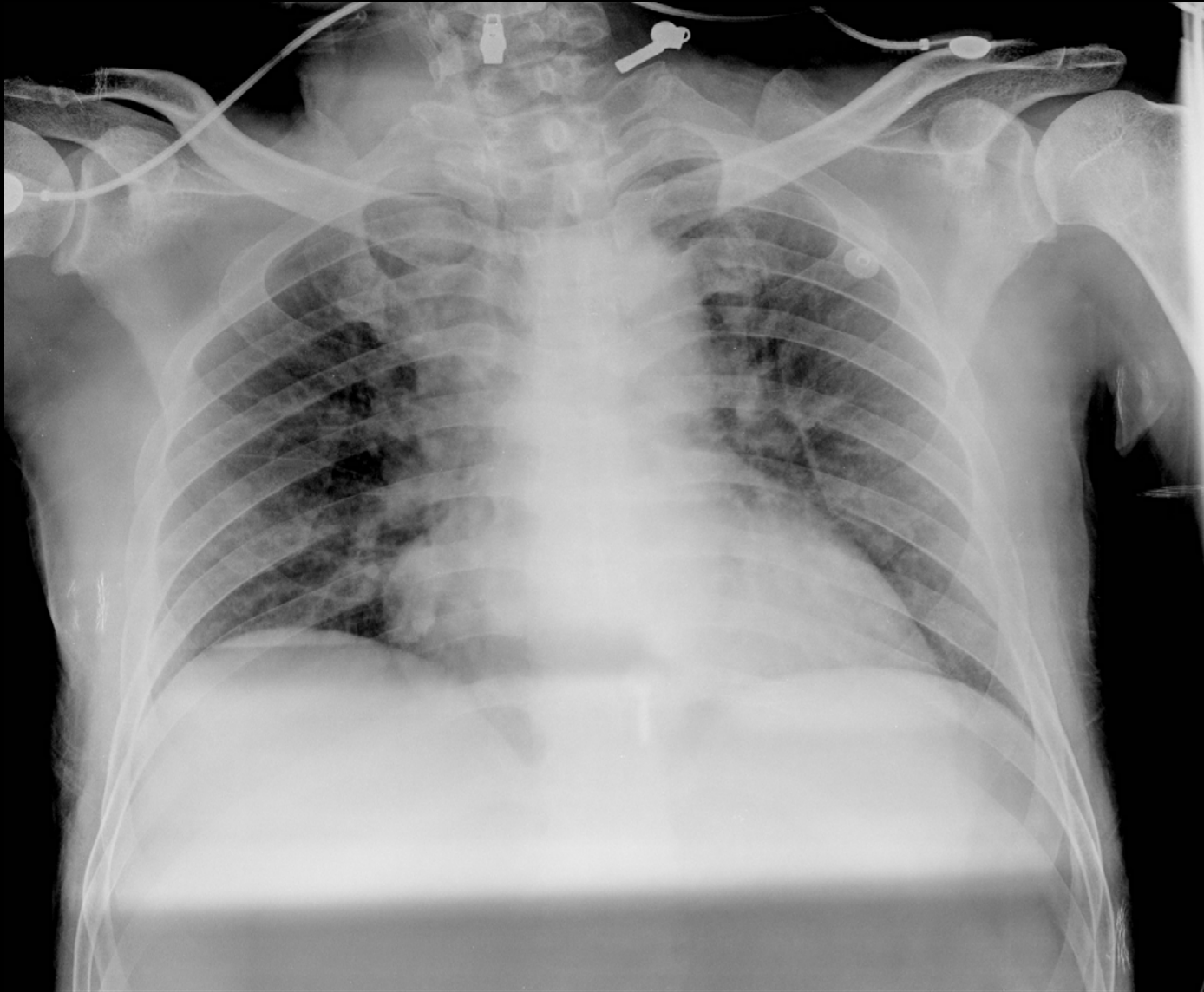
Anterior STEMI with Shock Treated with PCPS / Primary PCI

- 56세 남자
- Hypertension for 10 yrs, Current smoker
- Exertional chest pain for months
 - Severe anterior CP for 30 minutes
- 7:43 pm ER arrival, V/S 152/92 mmHg – 78 bpm
 - 7:54, V/S 70/?, 38 bpm
 - Epinephrine and Atropine, IV dopamine
 - Transferred to cath lab

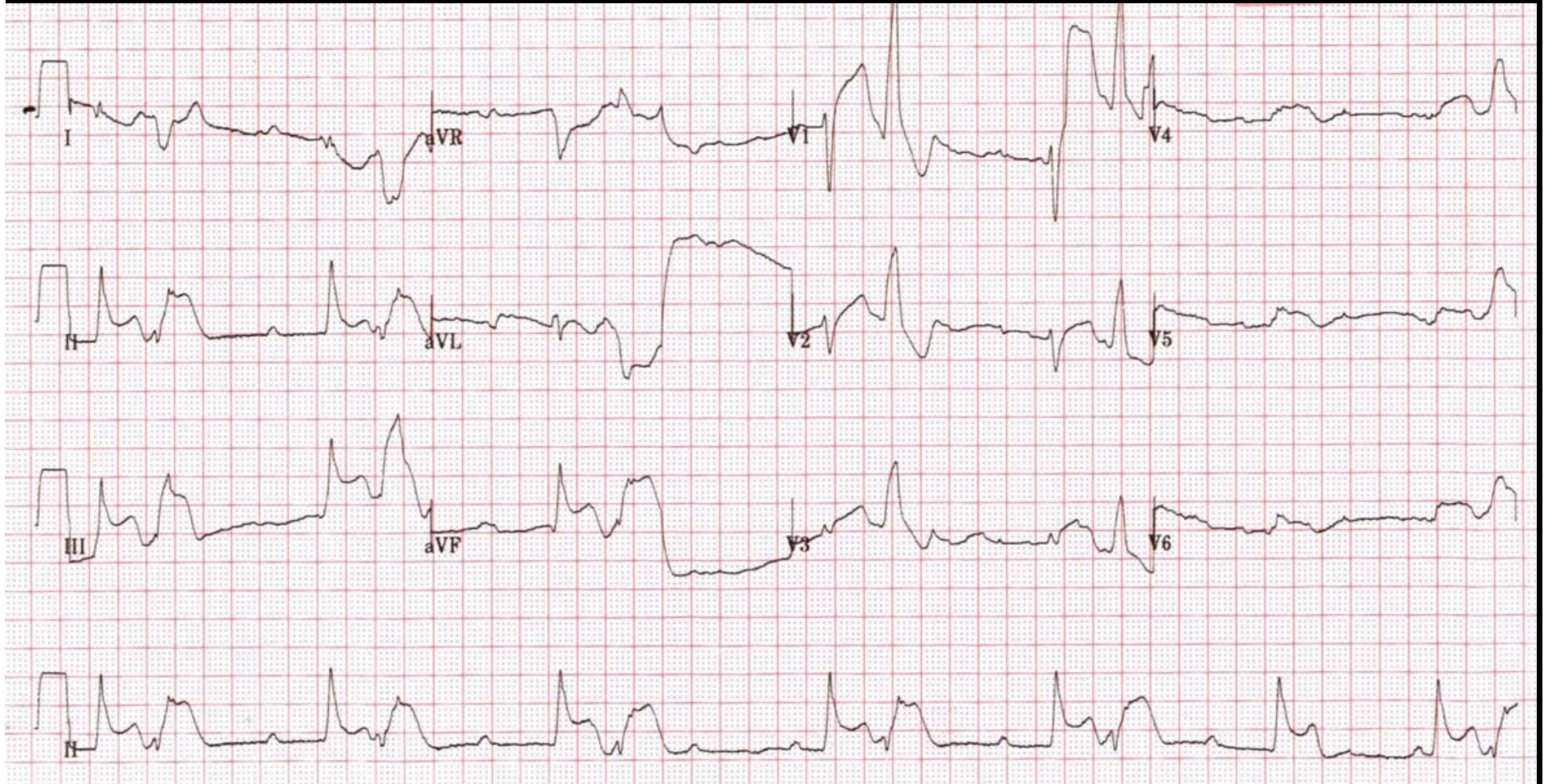
Initial ECG



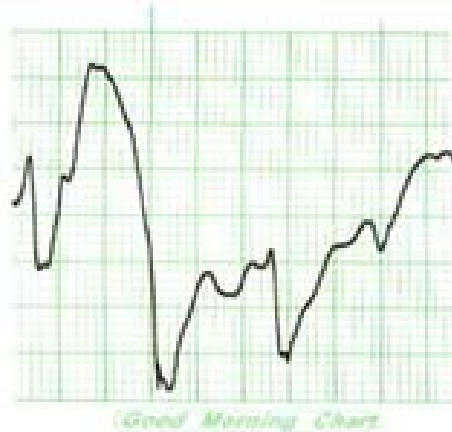
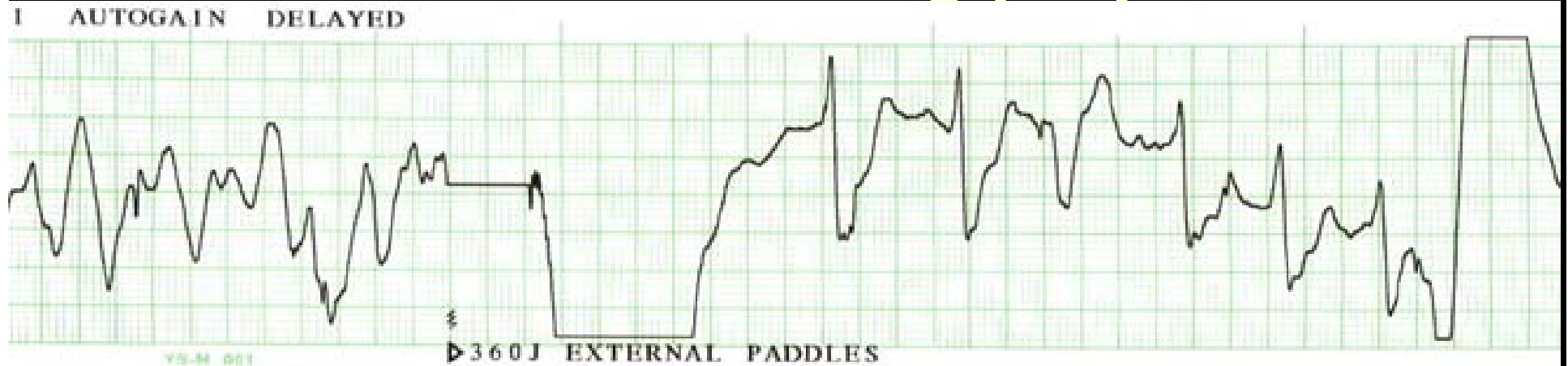
CXR



10 minutes after ER arrival



Cath Lab - Vfibr during preparation



- 20:05~21:30 Repeated defibrillation**
- 20:15 Intubation**
- 20:20 IABP**
- 20:25 Temporary pacemaker**
- 20:40 PCPS**
- 21:05~21:30 Primary PCI**

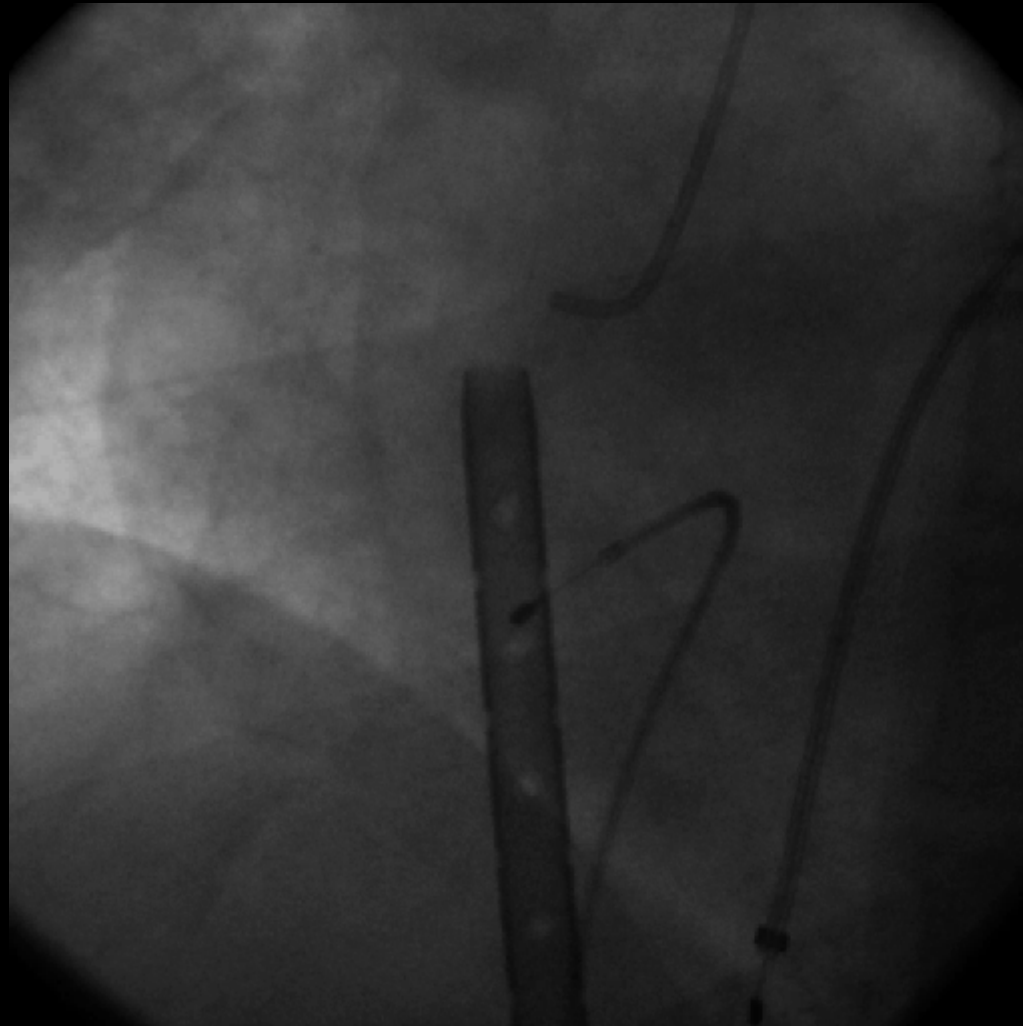
20:05 ~ 21:30 까지 ~~2번의 360J~~ VF 보여 360J 2회 시행함.
 계속적인

Cath Lab - Vfib during preparation

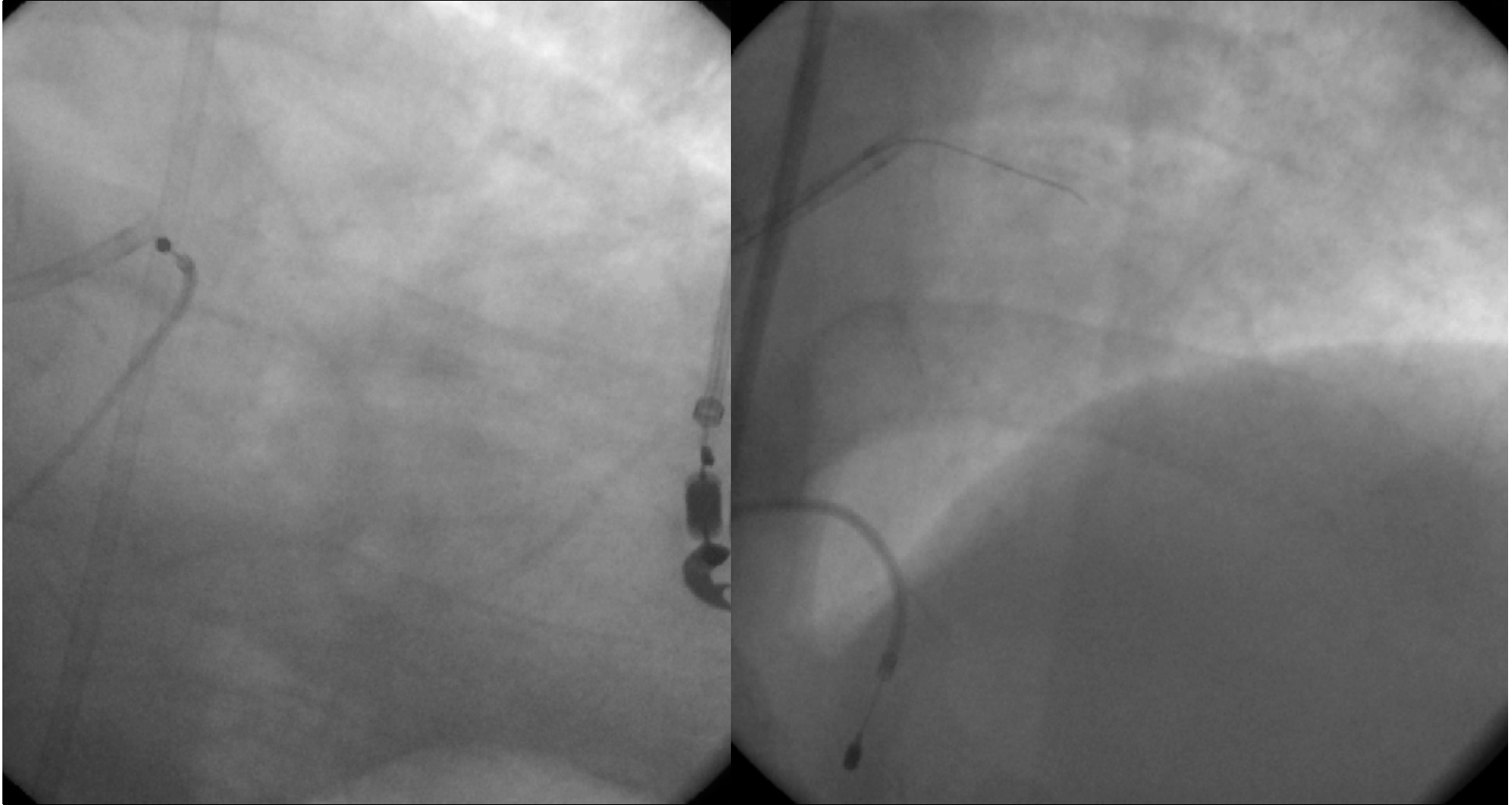


IABP followed by PCPS

RCA

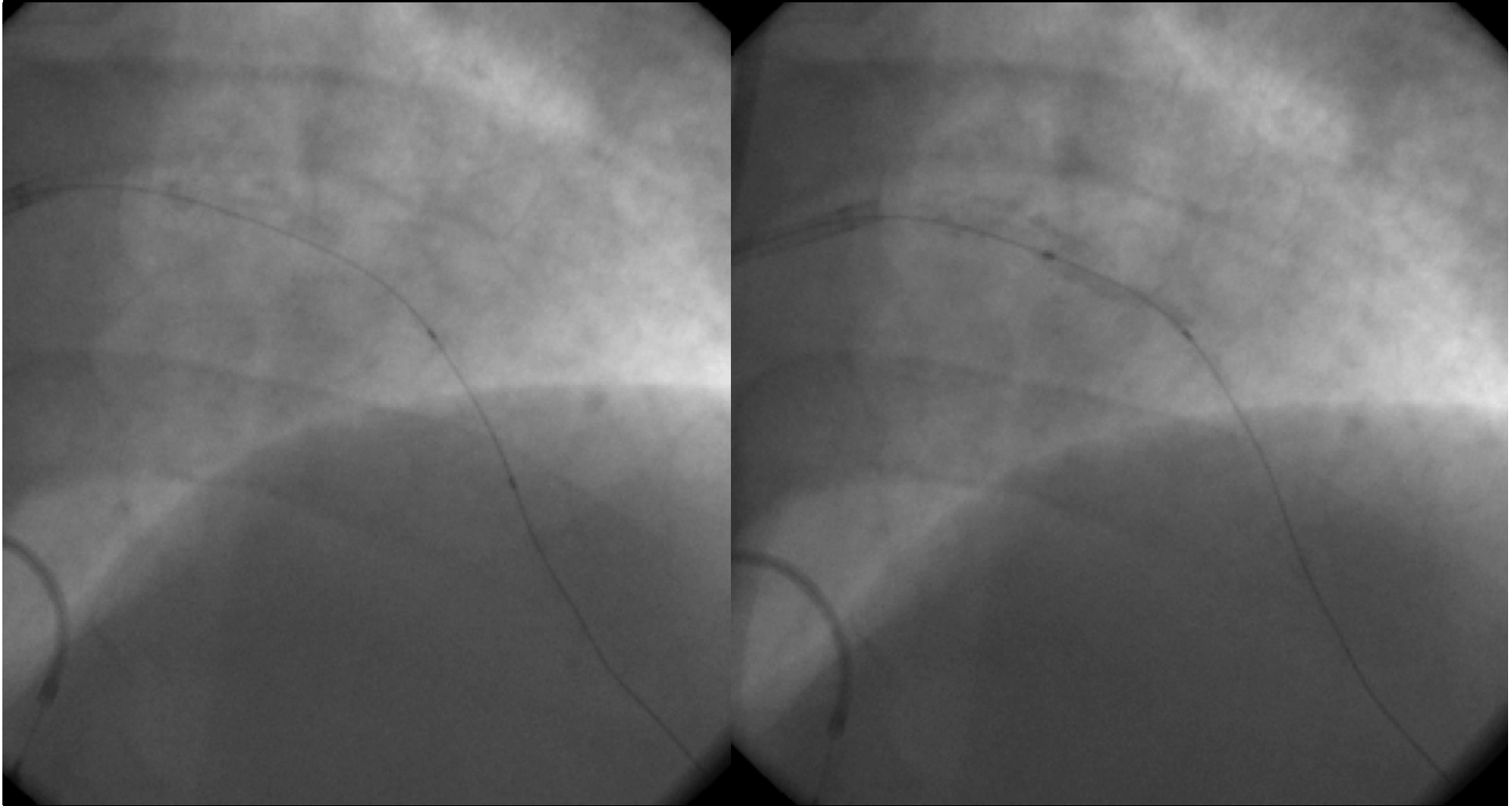


LCA angiogram



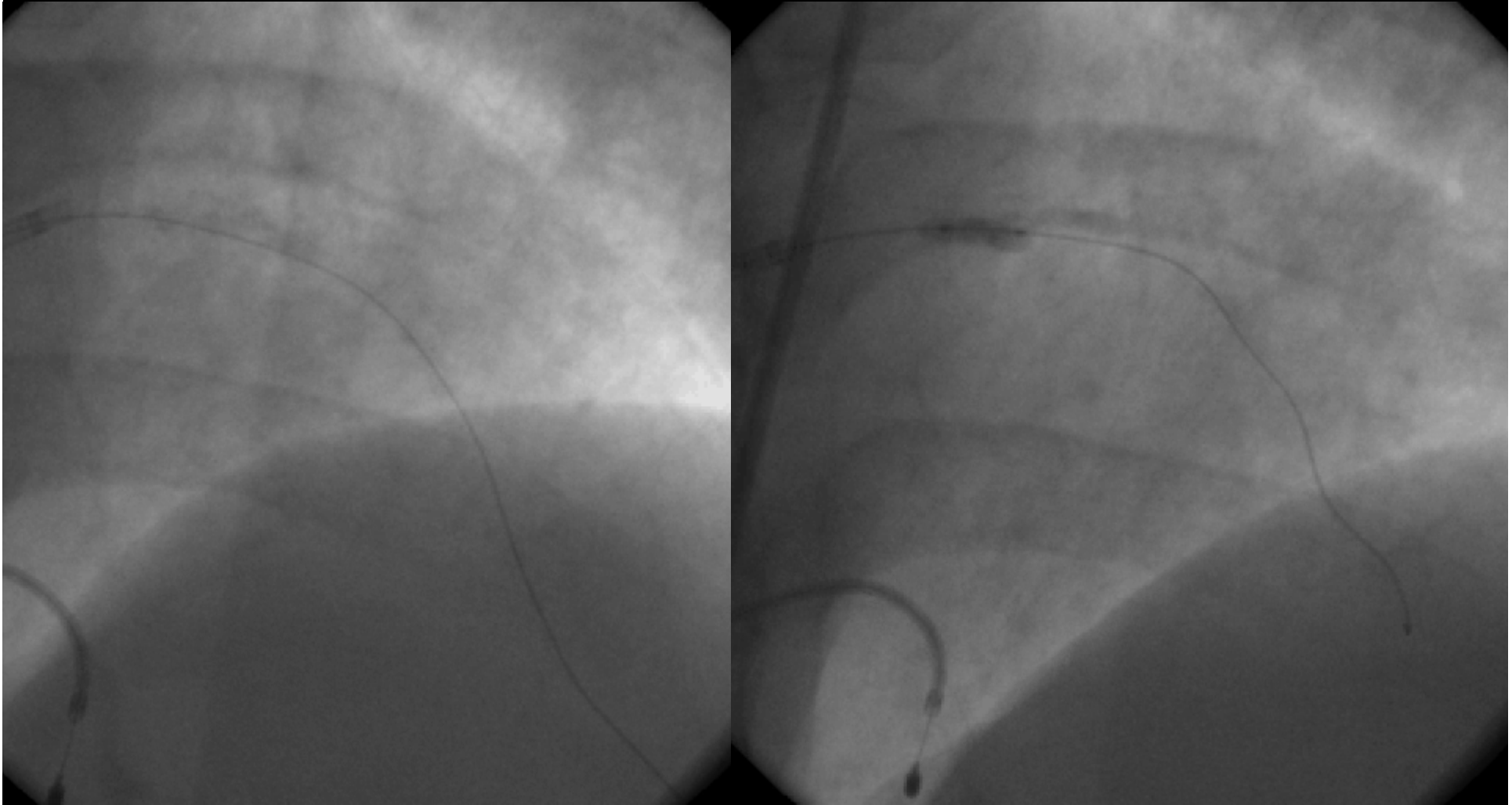
7Fr EBU 4

Balloon Dilatation



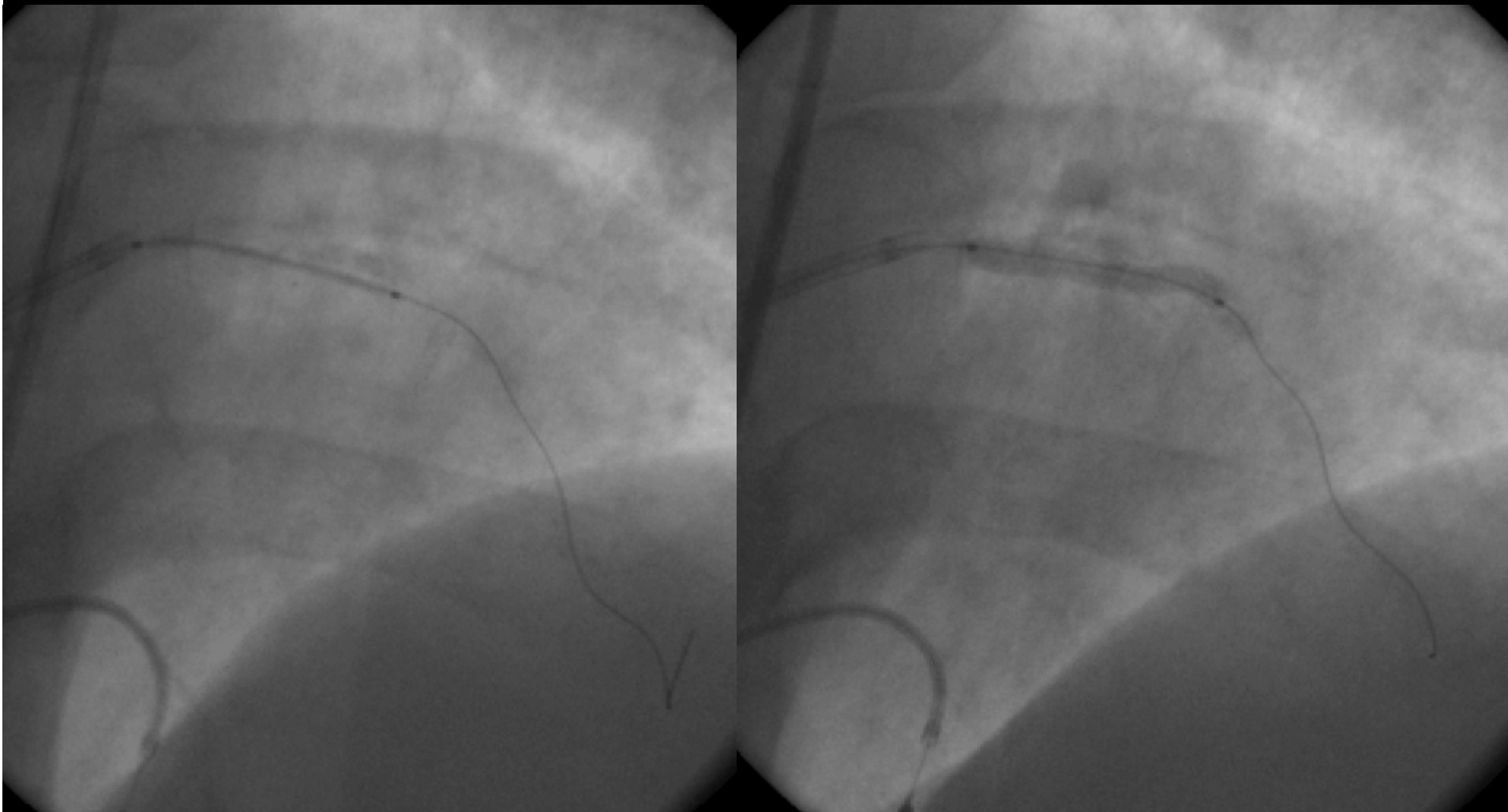
3.0x20 mm, 10 atm

HP Dilatation d/t Difficult Stent Delivery



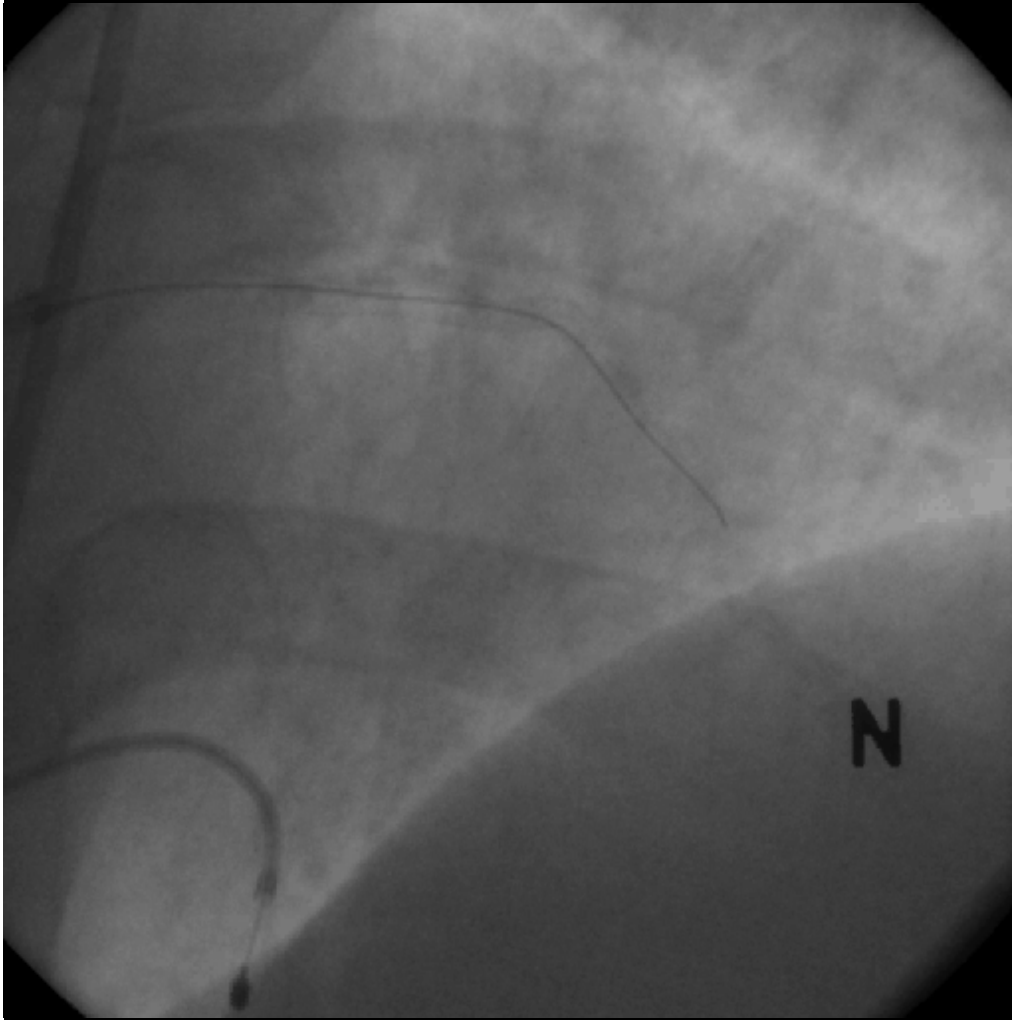
Quantum 3.0x12 mm, 20 atm

Stenting



ENDEAVOR 3.0x30 mm, 14 atm

Final Angiogram



Defibrillation >30 times

IABP

Temporary pacemaker

PCPS

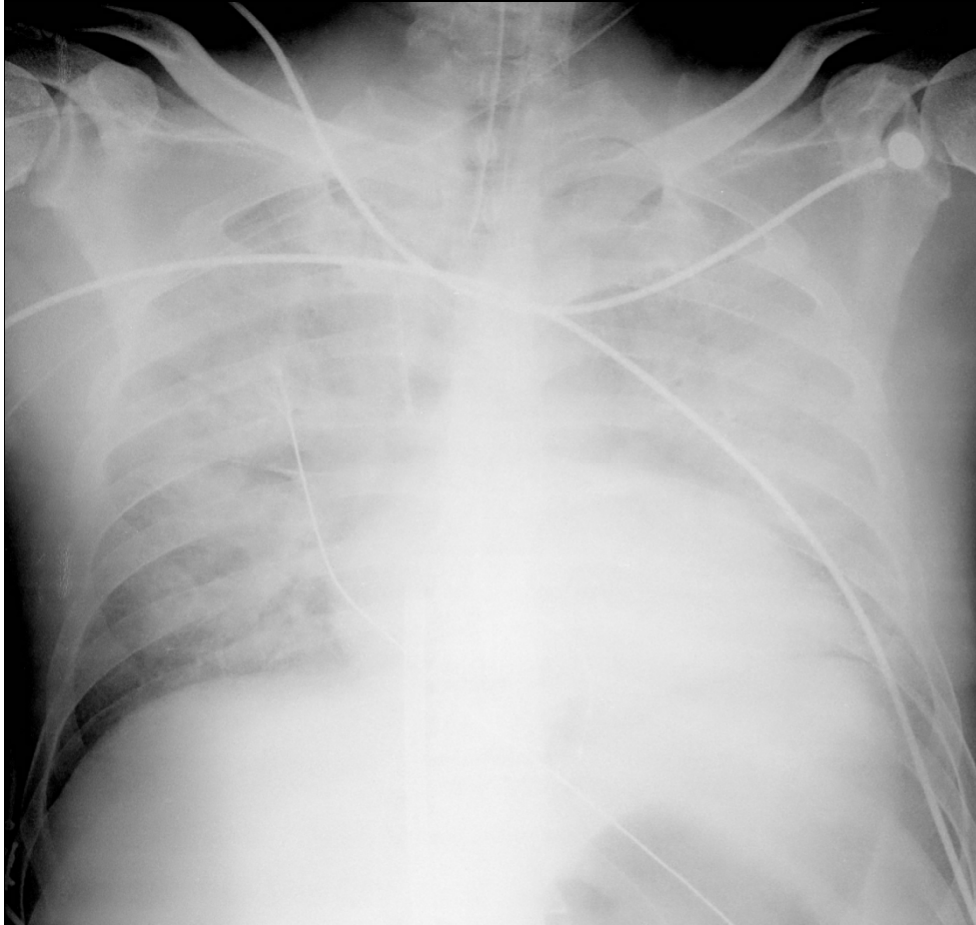
Five cine angiograms

Didn't touch mLAD

≤ 60 cc contrast used



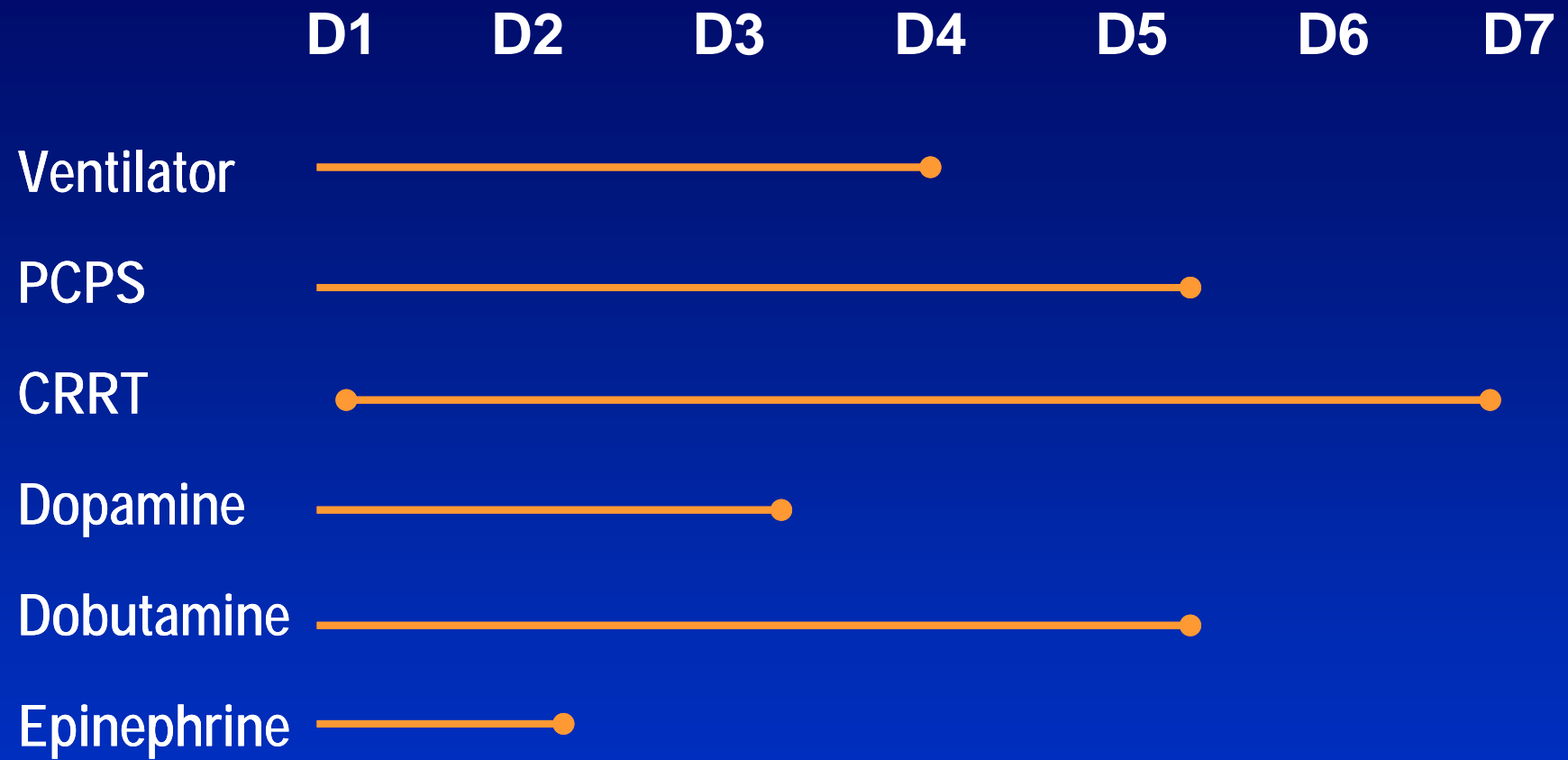
CXR



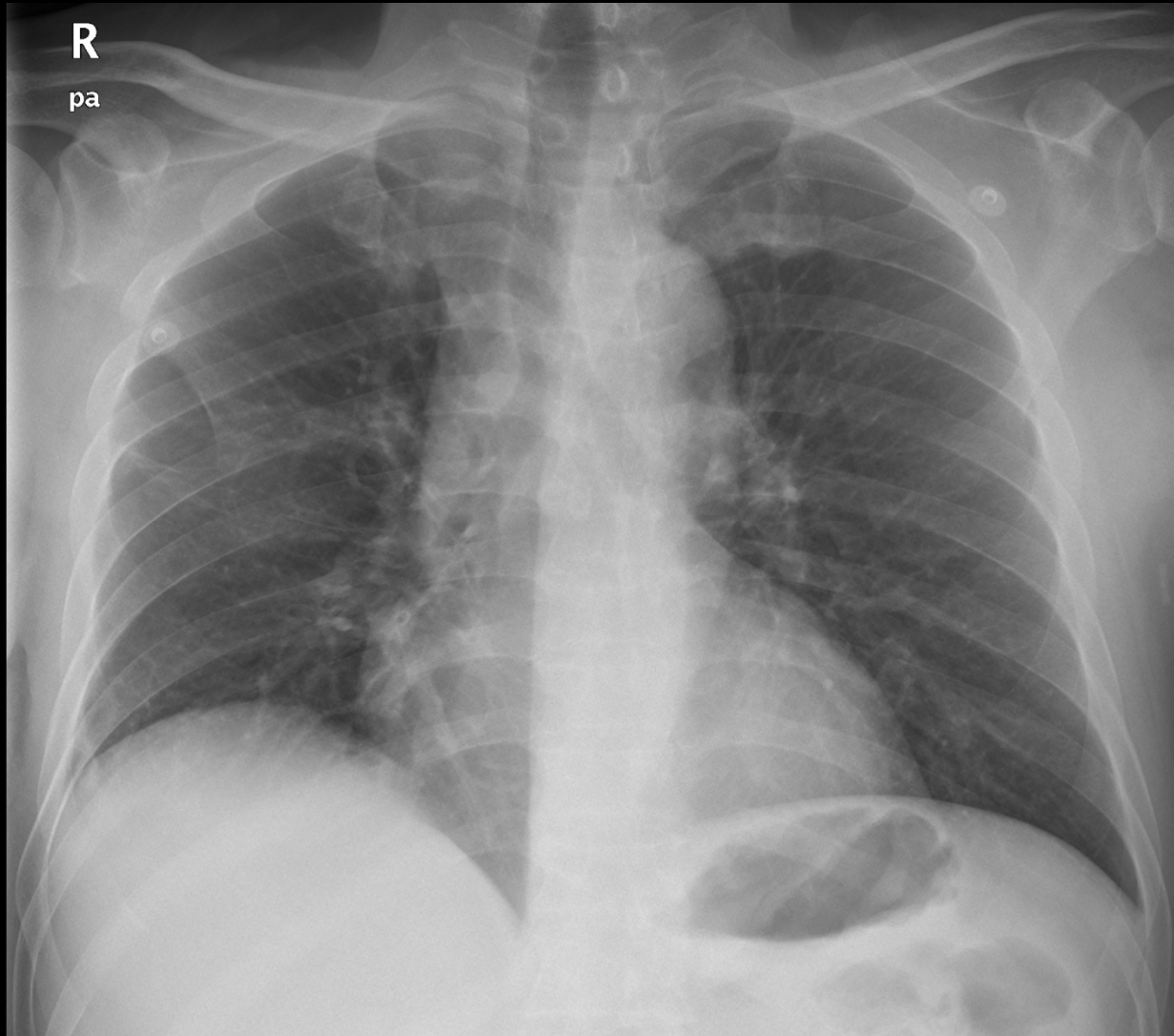
Day 1



Day 3



CXR



3 weeks

CASE 5

Nonculprit Lesion PCI in Inferior STEMI with Shock

- 93세 여자
- S/P Femur neck fracture surgery, 6 YA
- 특별한 질환 없이 지내다가 늑골골절로 요양원에서 지내던 중 혈압이 낮아 의료원 방문

IMP: STEMI

Rib Fx있는 환자로 요양시설 입소후 금일 아침 시행한 혈압이 낮아 내원한 환자로 내원후 측정된 EKG에서 II, III, aVF에서 ST elevation 보여 상기 진단하였으며 further management위해 의뢰드립니다.

평상시 고지혈증으로 충남대 병원에서 진료중이라고 보호자 진술하였습니다.

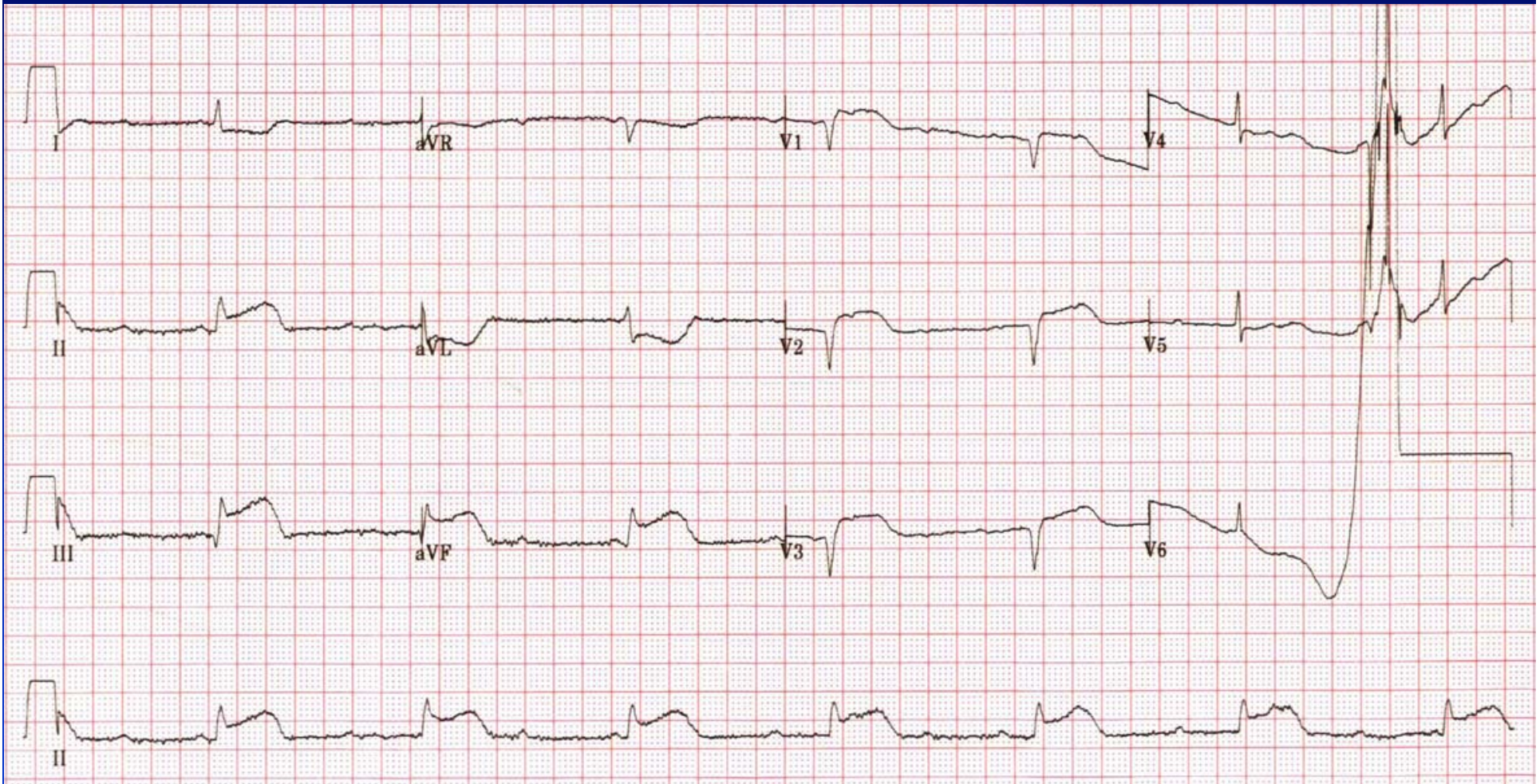
initial BP 60/30 - 50 last BP 80/40

PO: aspirin 300mg, plavix 300mg

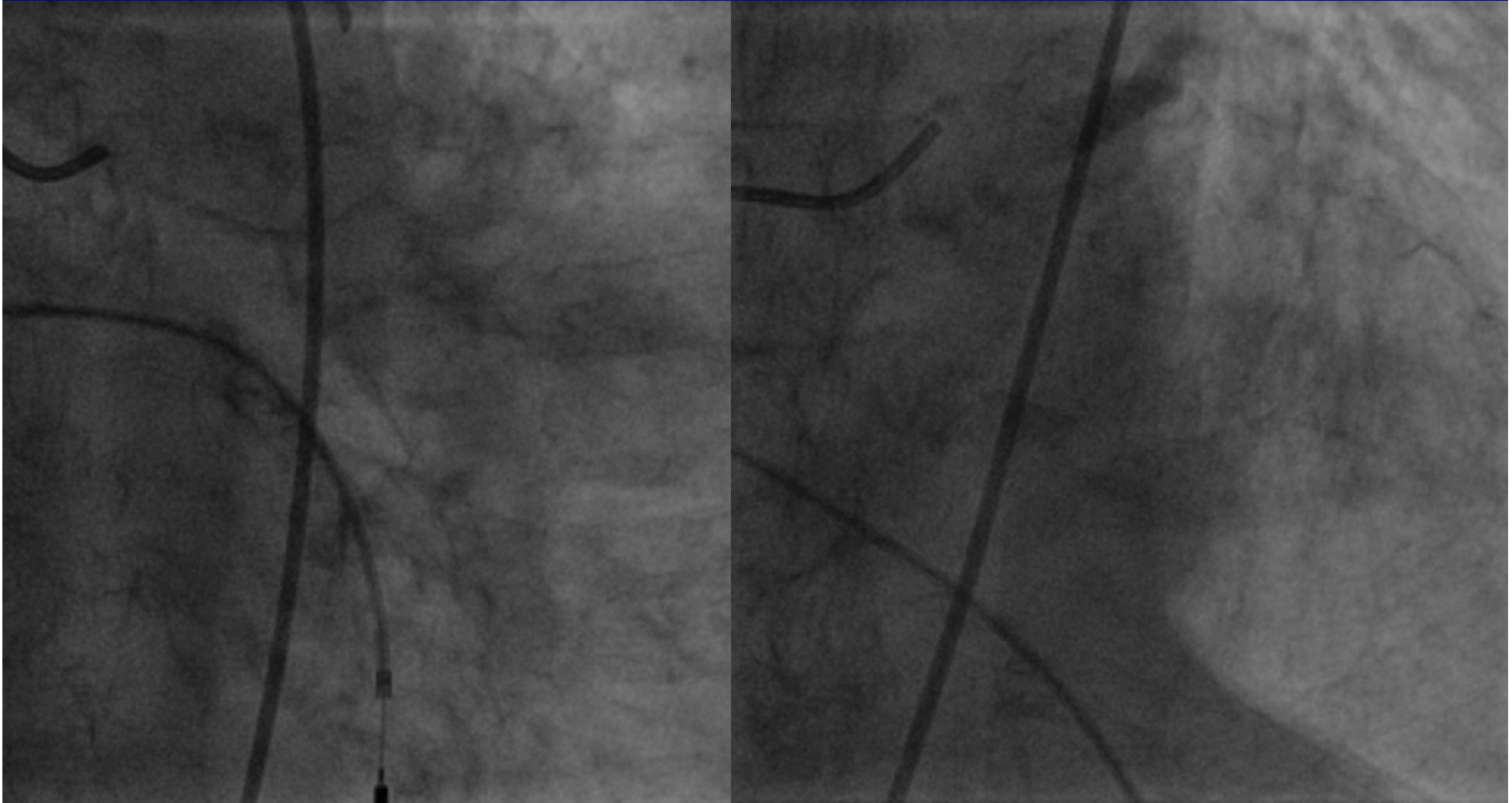
IV: heparin 4000 U IVS + heparin 20000U mlv

dopamin 800mg mlv

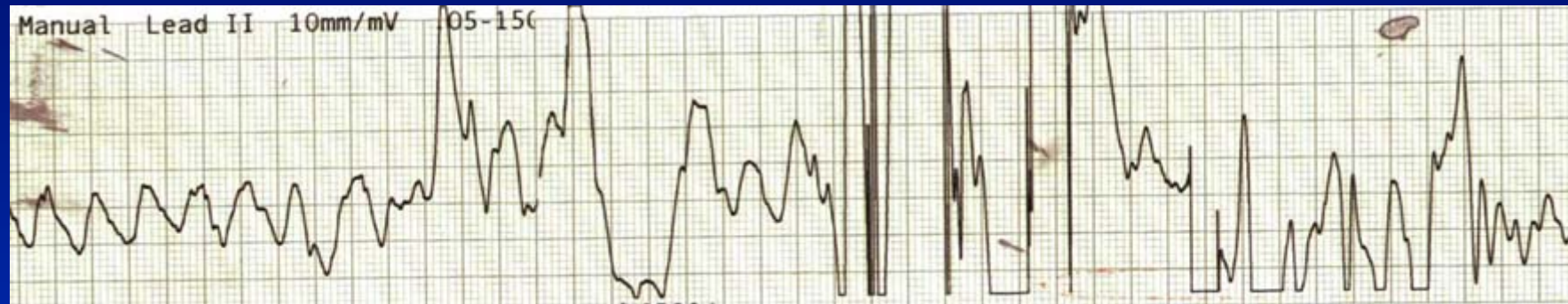
타병원 ECG



Baseline LCA angiogram

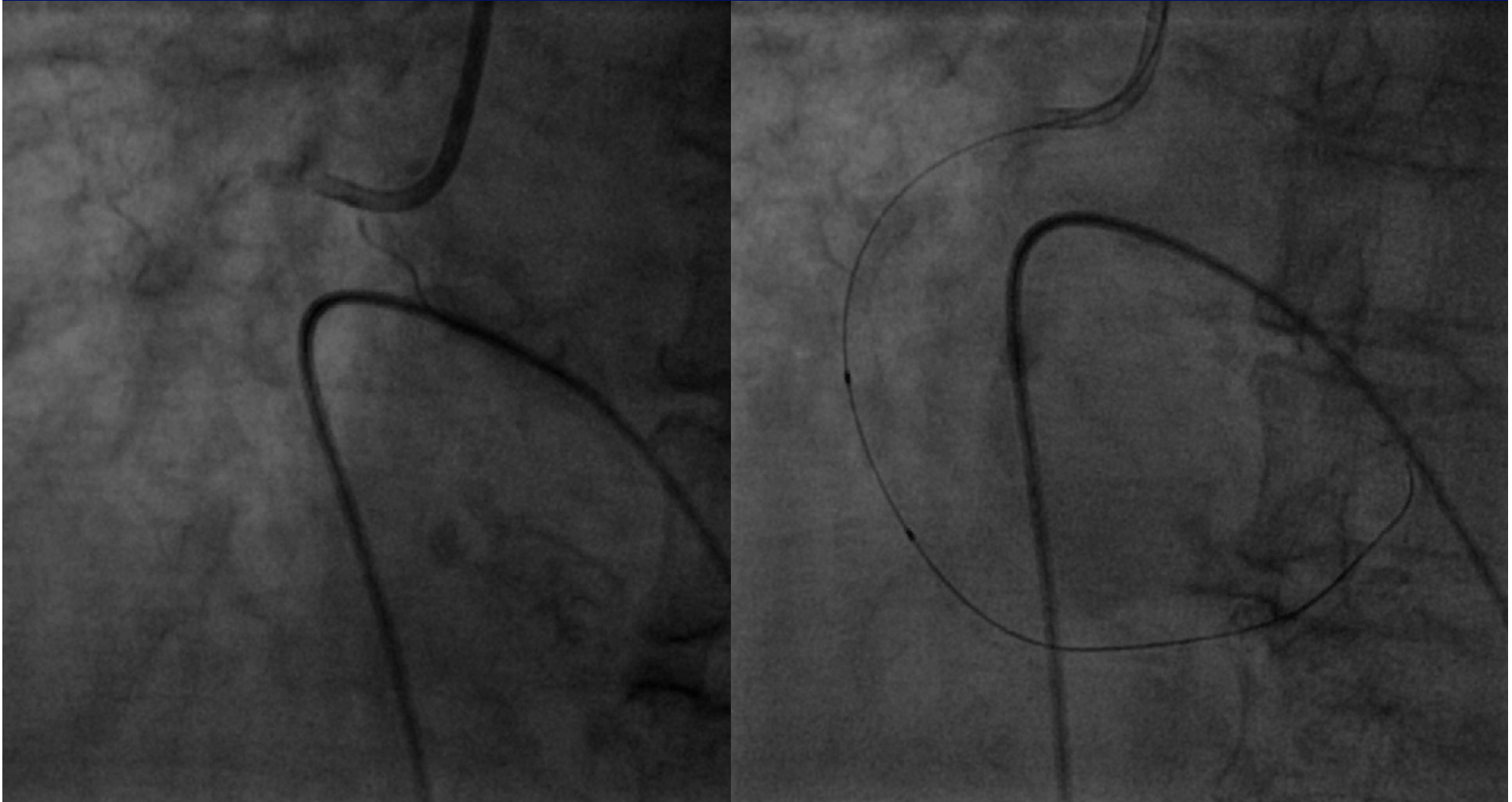


Temporary pacemaker



Two episodes of Vfib → Defib

Baseline RCA angiogram



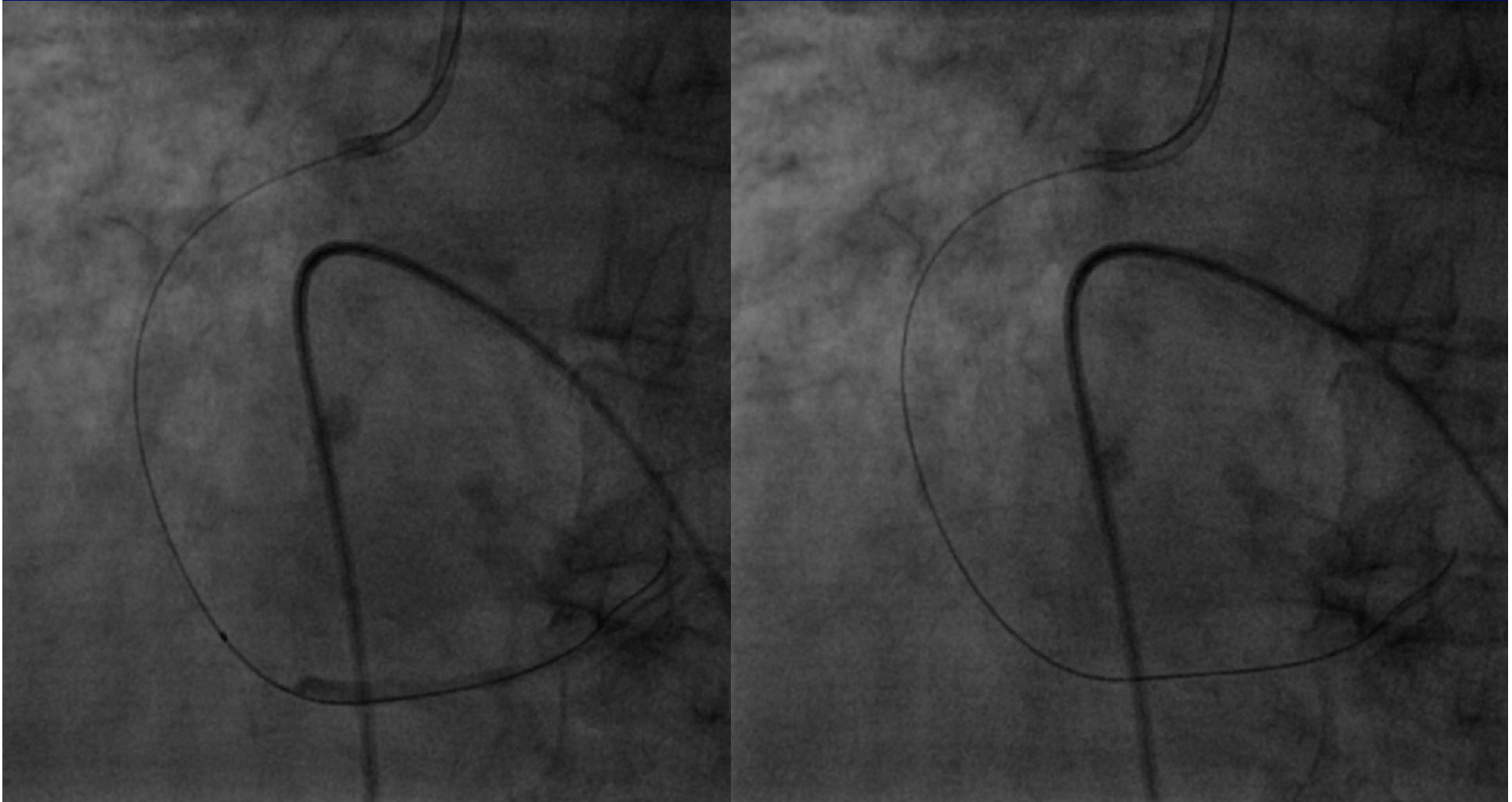
Balloon passage

Predilation



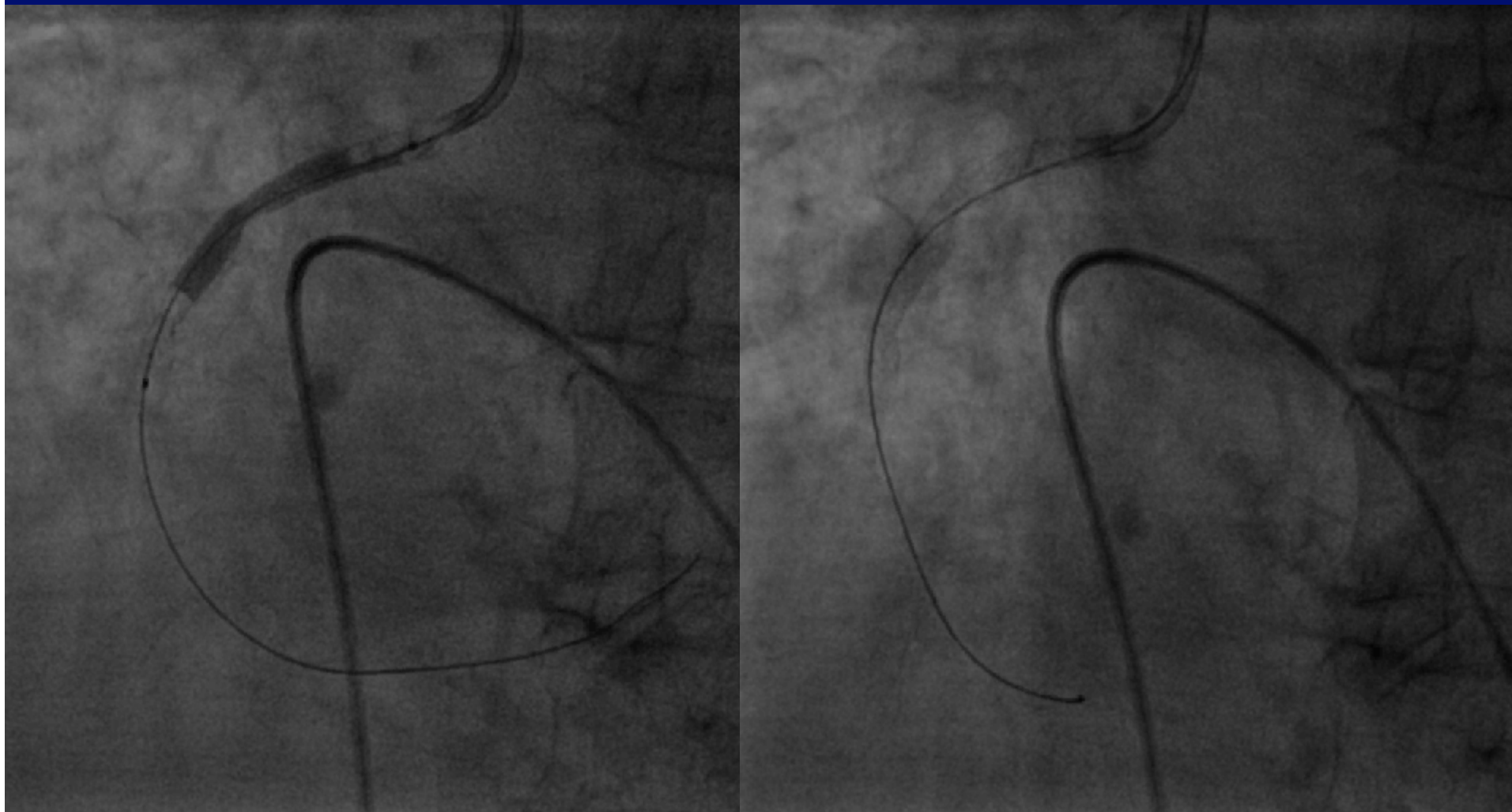
Predilation with 2.5x20 mm balloon

Suction



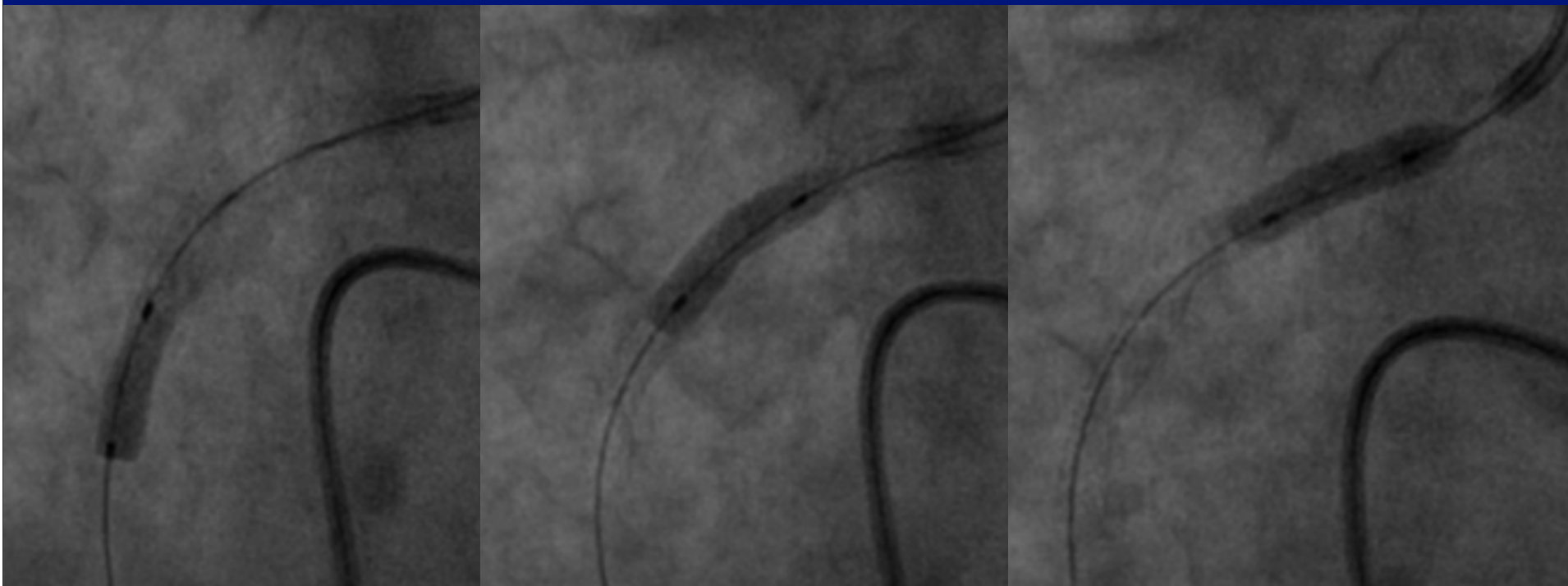
Thrombi suction

Stenting



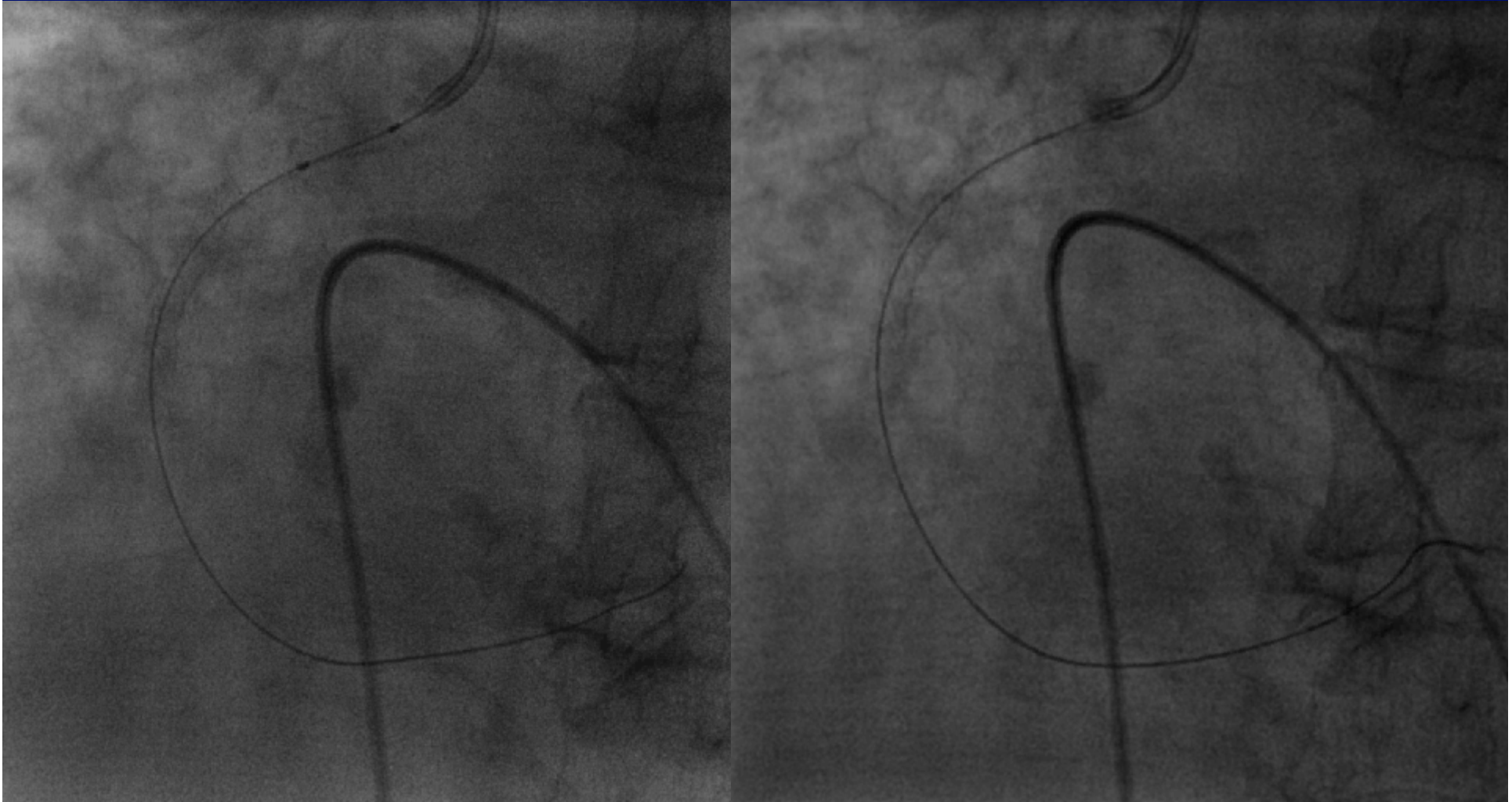
ENDEAVOR 3.5x38 mm, 12 atm

Postdilatation



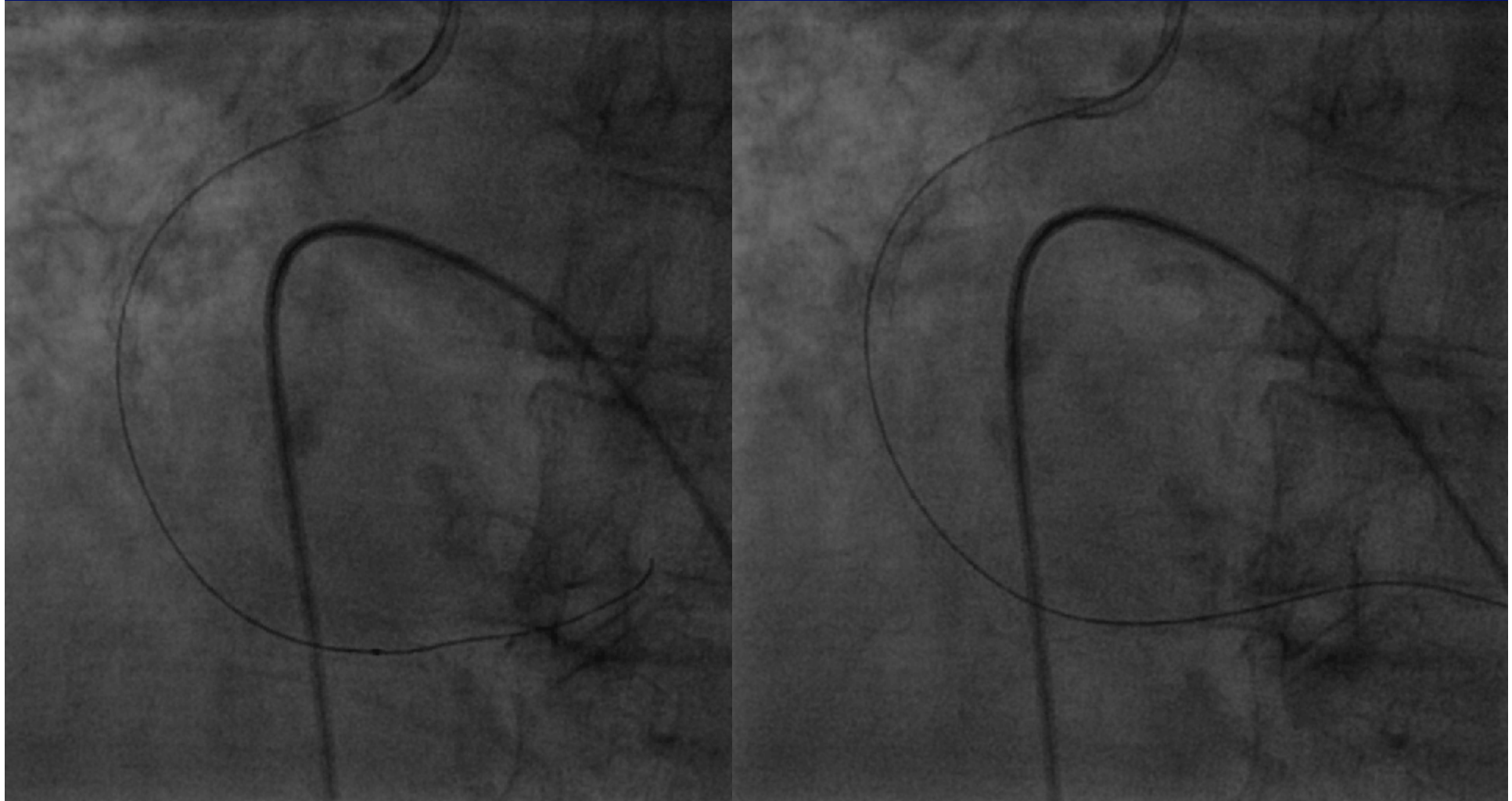
Quantum 3.5x12 mm, 16-20 atm

After postdilatation

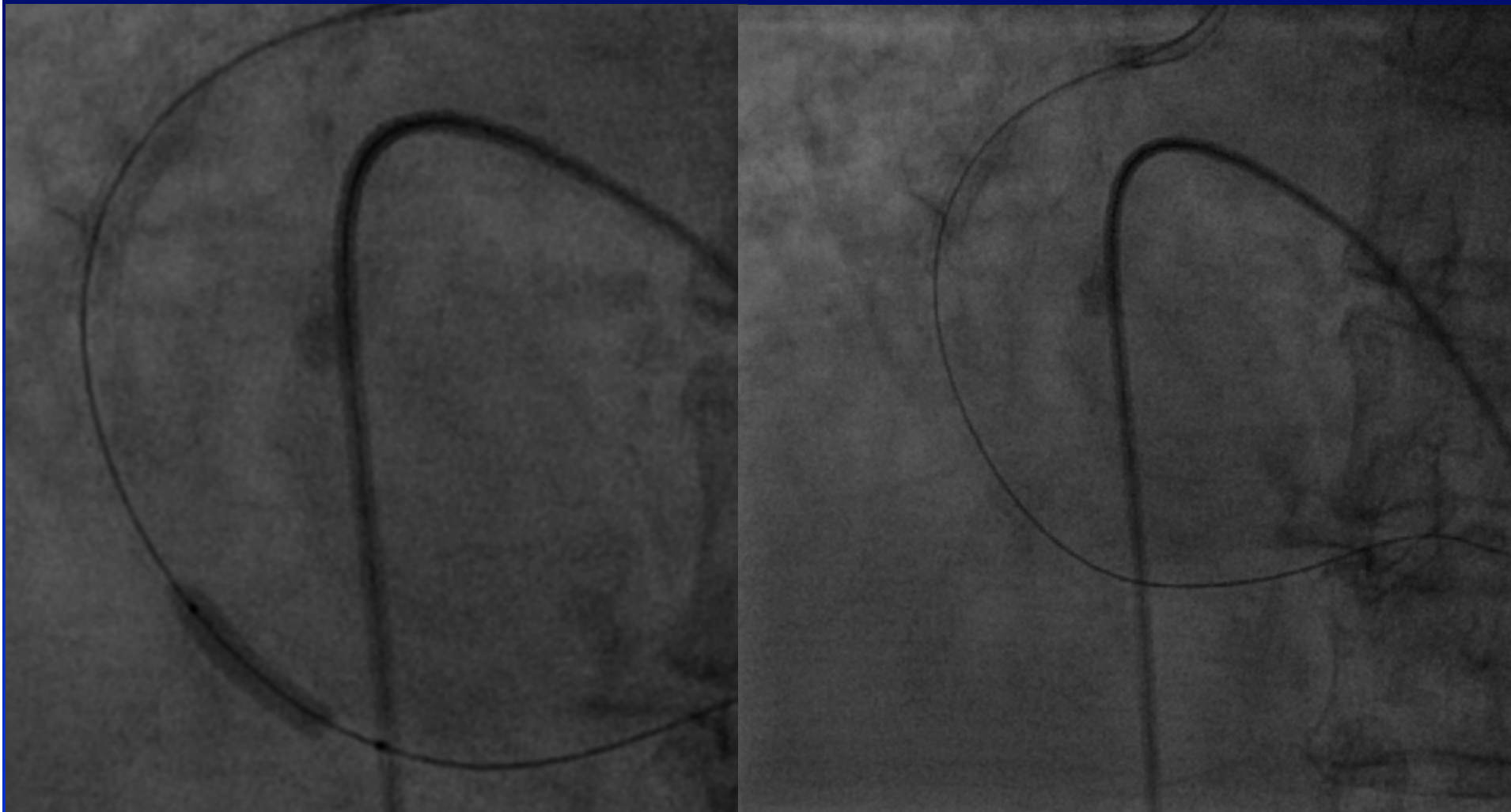


Vfib → Defibrillation, IC Abciximab

Suction again

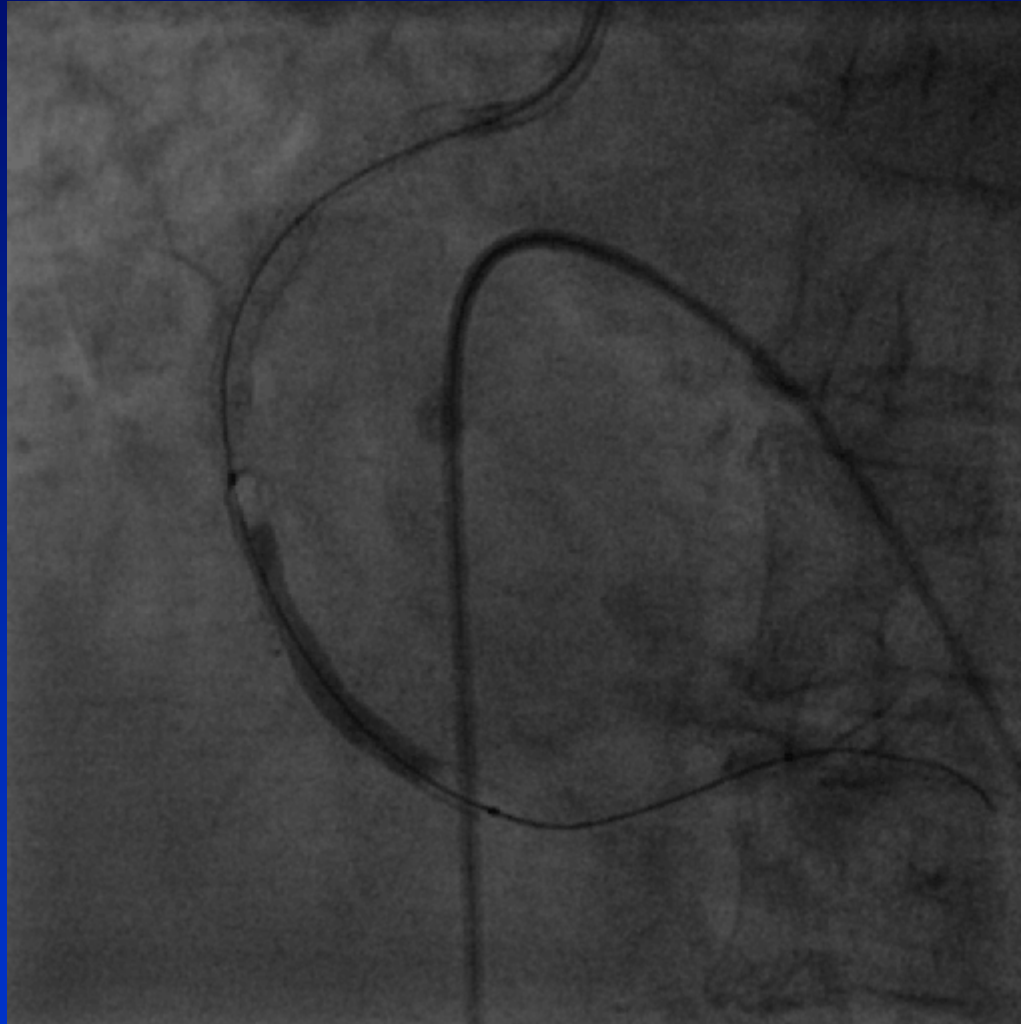


dRCA Ballooning



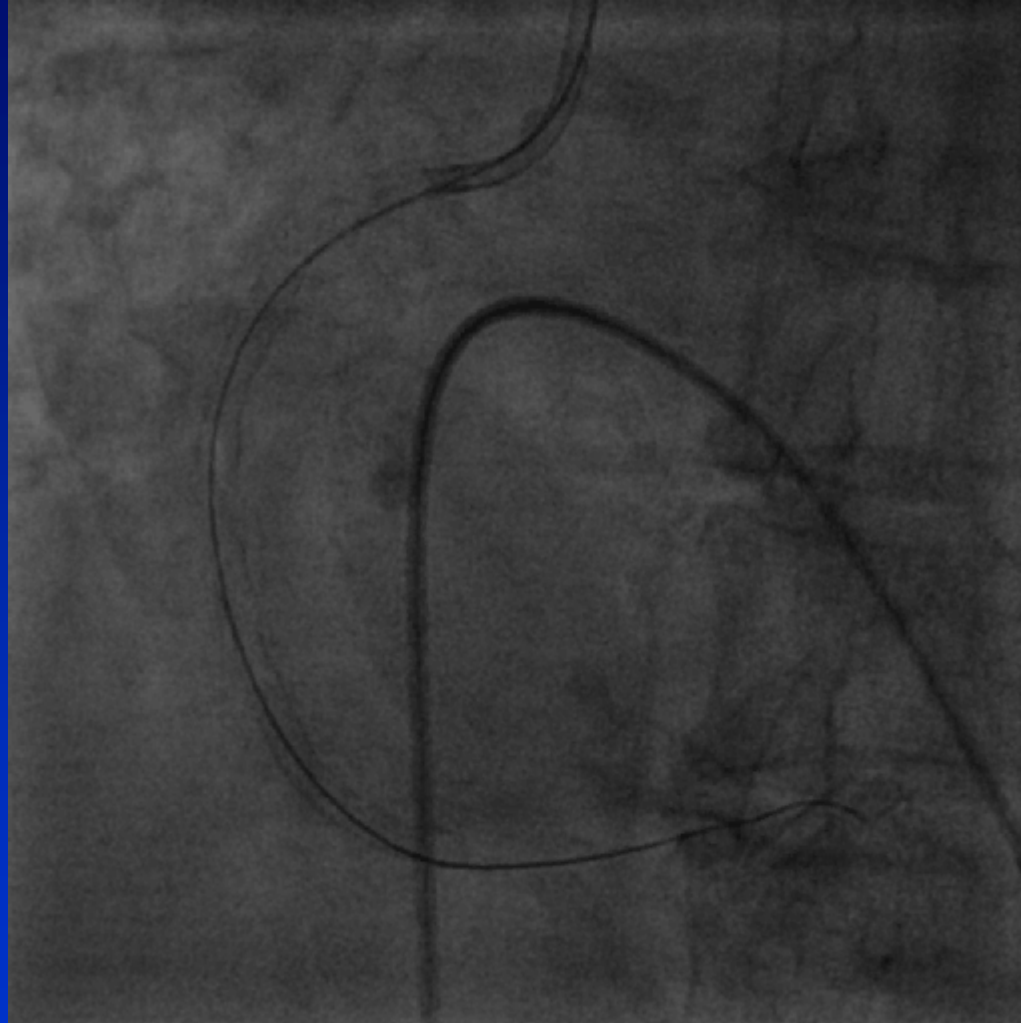
2.5x20 mm balloon, 10 atm

dRCA stenting



ENDEAVOR 3.0x38 mm, 10 atm

Final Angiogram



Vfib, PEA followed by Flat

Treatment of STEMI Shock

- *Recommendations* -

- Transfer early → Intervene early
- TTE evaluation at ER
 - *LV function, RV infarction, Mechanical defects*
- The more people the better, in the cath lab
- Temporary pacemaker support
- IABP support is essential – preprocedural
- PCPS can save life.

Treatment of STEMI Shock

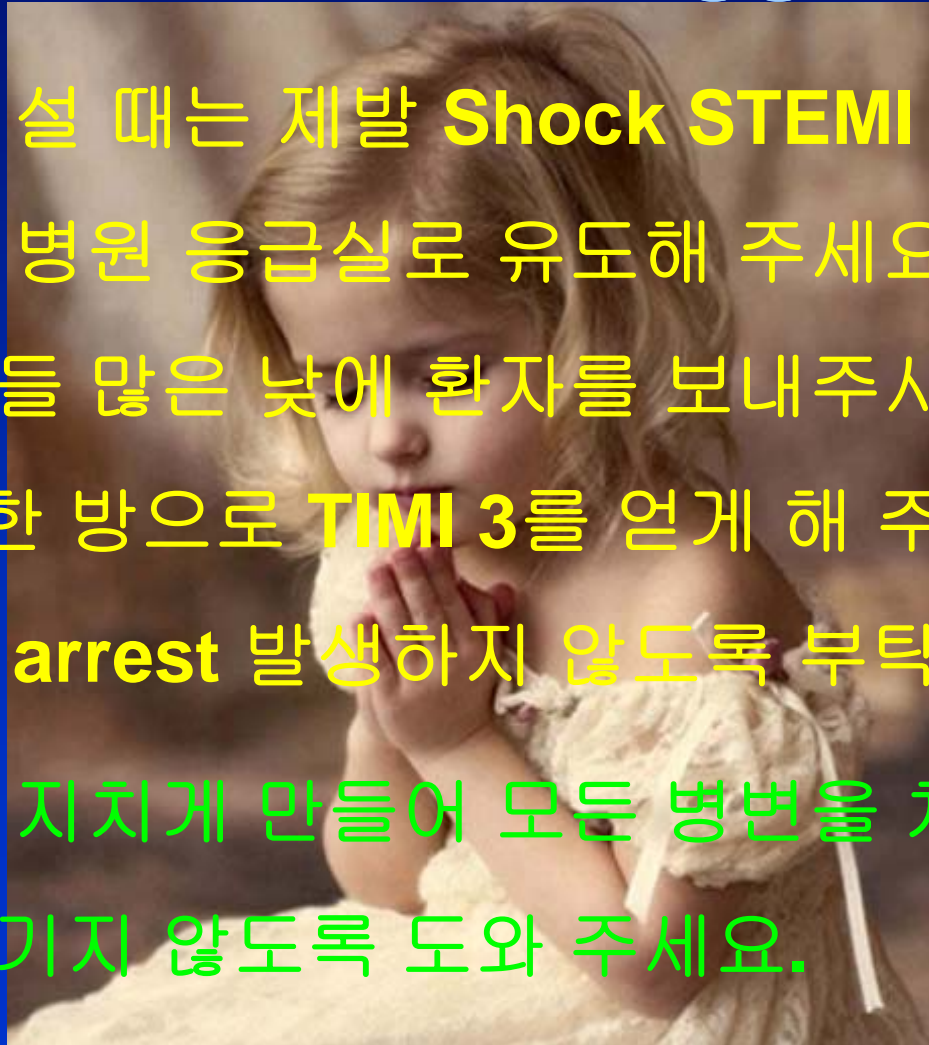
– *Intervention Suggestion* -

- **Rapid identification of culprit lesion**
- **Thrombi suction can reduce damage**
 - *Pre-ballooning seems better*
- **Less contrast shot to the coronary**
 - *Do not try to obtain the best image*
- **Simple procedure is better**
- **Treat non-culprit lesion later**

Treatment of STEMI Shock

– *Intervention Suggestion* -

- 제가 당직 설 때는 제발 **Shock STEMI** 환자의 구급차를 다른 병원 응급실로 유도해 주세요.
- 제발 사람들 많은 낮에 환자를 보내주시고,
- **Suction** 한 방으로 **TIMI 3**를 얻게 해 주시고,
- 시술 도중 **arrest** 발생하지 않도록 부탁드립니다.
- 제발 저를 지치게 만들어 모든 병변을 치료하고 싶은 욕심이 생기지 않도록 도와 주세요.





Thanks for the time