



Cases of Endovascular Thrombectomy in Acute Limb Ischemia

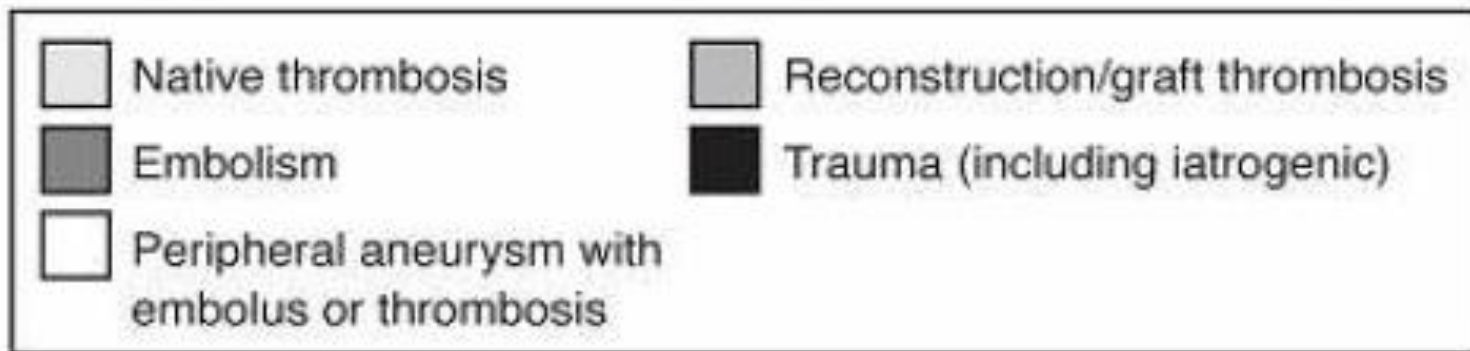
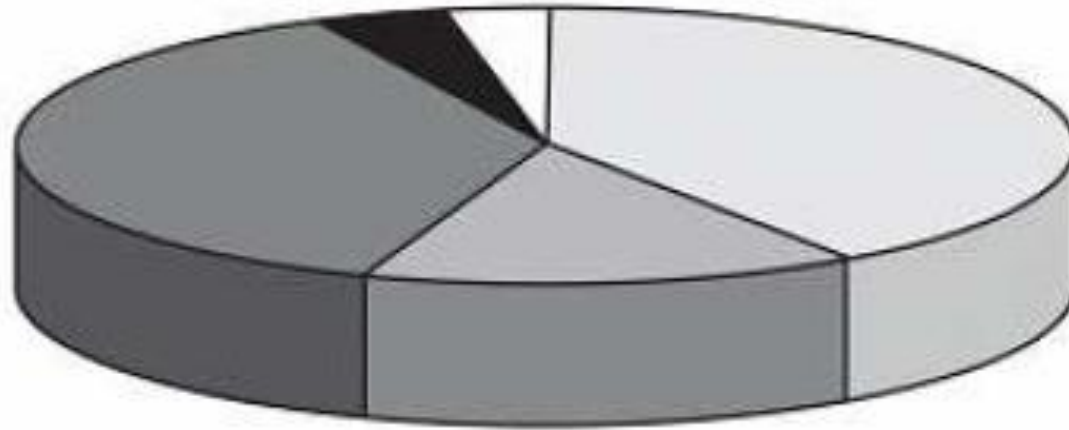
APAC Endovascular Expert Meeting

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Etiology of Acute limb ischemia



Symptom and Sign of ALI: 5 P's

- Pain
- Pulselessness
- Pallor
- Paresthesia
- paralysis

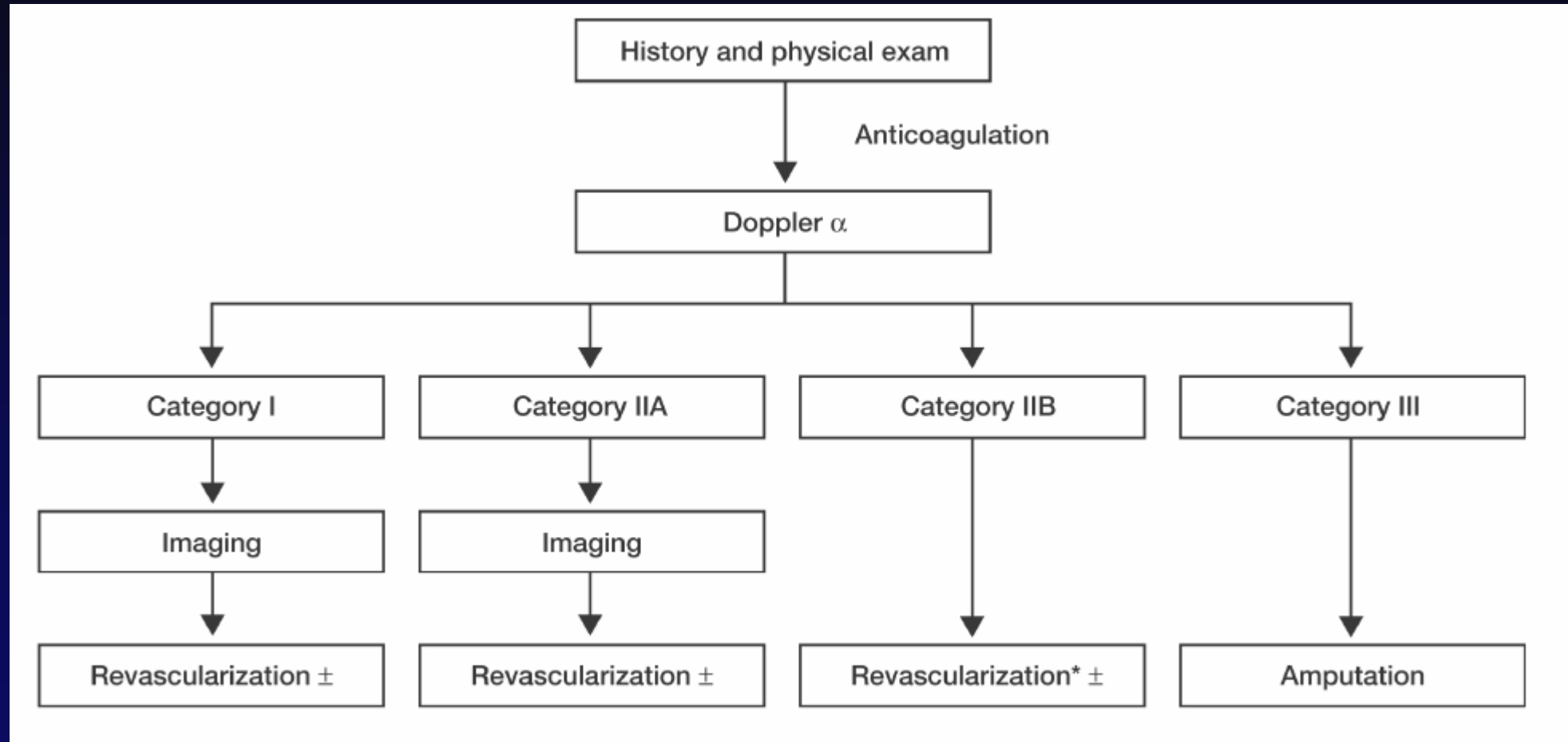
Categories of ALI

Table 11. Clinical Categories of Acute Limb Ischemia

Category	Description/ Prognosis	Sensory Loss	Muscle Weakness	Arterial Doppler Signals	Venous Doppler Signals
Viable	Not immediately threatened	None	None	Audible	Audible
Threatened marginally	Salvageable if promptly treated	Minimal (toes) or none	None	(Often) inaudible	Audible
Threatened immediately	Salvageable with immediate revascularization	More than toes; associated with rest pain	Mild, moderate	(Usually) inaudible	Audible
Irreversible	Major tissue loss or permanent nerve damage	Profound, anesthetic	Profound paralysis (rigor)	Inaudible	Inaudible

Reprinted with permission from Katzen BT. Clinical diagnosis and prognosis of acute limb ischemia. Rev Cardiovasc Med 2002;3(Suppl 2):S2-S6.

Treatment of ALI



Case 1. ALI due to graft thrombotic occlusion

- HTN, DM, dyslipidemia
- 2011. 8. 31. Septic knee → Lt. total knee replacement
- Intraop. popliteal artery injury → End to end anastomosis using 6mm Gore tex graft
- 2011. 10. 10. Septic knee, Revision of all components of total knee replacement arthroplasty (TKRA)
- Intraop. Thrombus in the previous Gore tex graft
- DPA pulse -, pale

Thrombus in graft



left femoral antegrade approach, LE arteriography was done;
segmental near total occlusion due to thrombosis in popliteal artery

Endovascular intervention



- aspiration thrombectomy (8F MP guiding catheter) was done
- balloon dilatation (5mm) for focal residual stenosis.
- balloon dilatation for dorsalis pedis thrombosis (2mm)

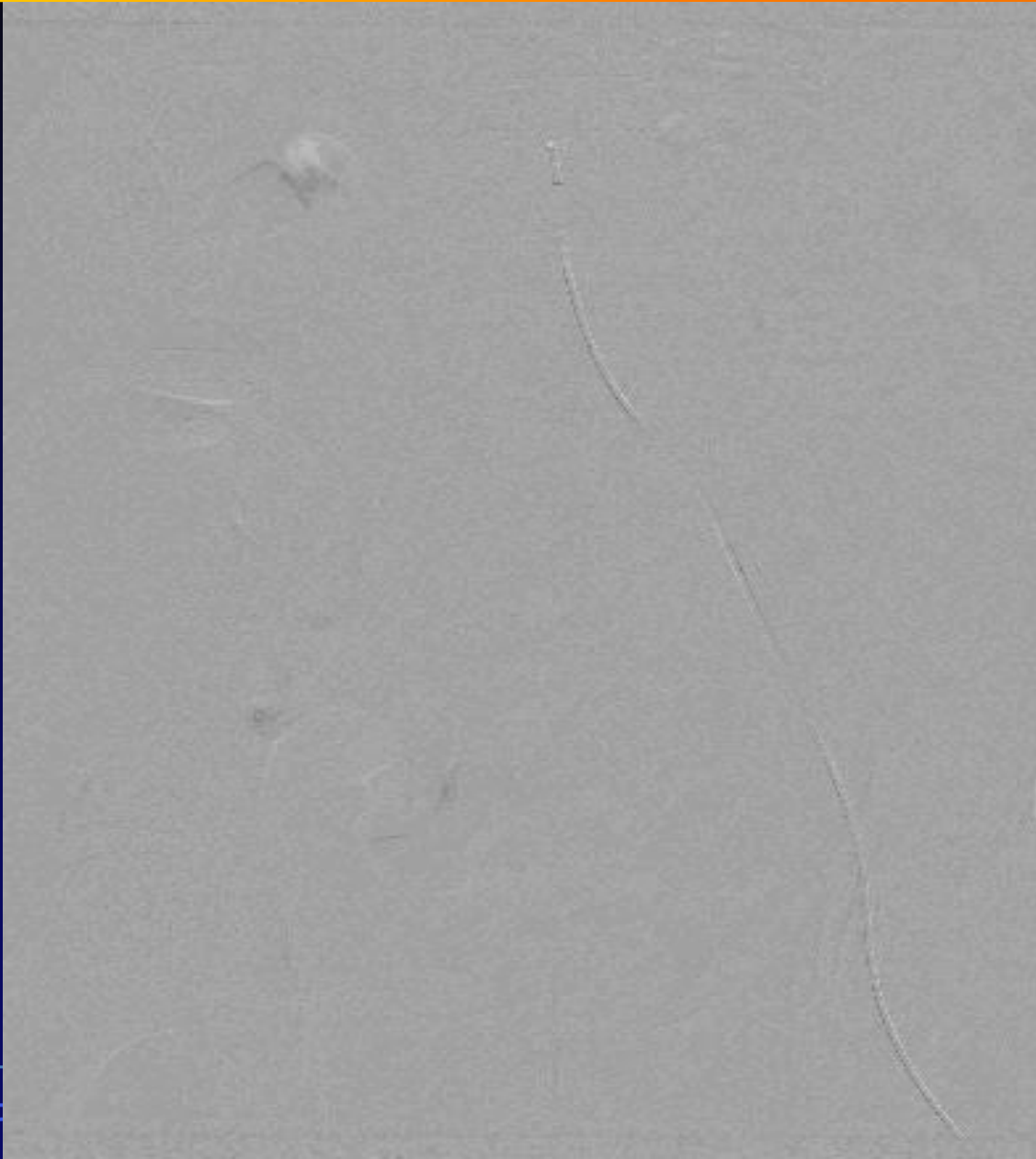
Final angiography



Thrombotic complication in a live demonstration

- 54/M
- C/C : Rt. lower leg claudication (2 years ago, Fontaine IIb)
- P/H : DM, HTN,
PCI to LAD (5 months ago, outside hospital),
AF on anticoagulation,
30 PY current smoker
- ABI : 0.36/0.95

Distal aortogram - rt. CIA ostial total occlusion



Contralateral puncture

Contralateral anterograde approach wiring



Omni catheter

Straight Terumo wire

Short stump

Weak guiding catheter
support

Ipsilateral retrograde approach wiring – double wire technique



Ipsilateral puncture

Retrograde approach

True lumen wiring

Ballooning 2 times

Externalization



After ballooning

Successful wiring

Externalization

After stenting and adjunctive ballooning



SMART control 7.0*100

SMART control 8.0*60

Adj. ballooning 6.0*60

End of live demonstration

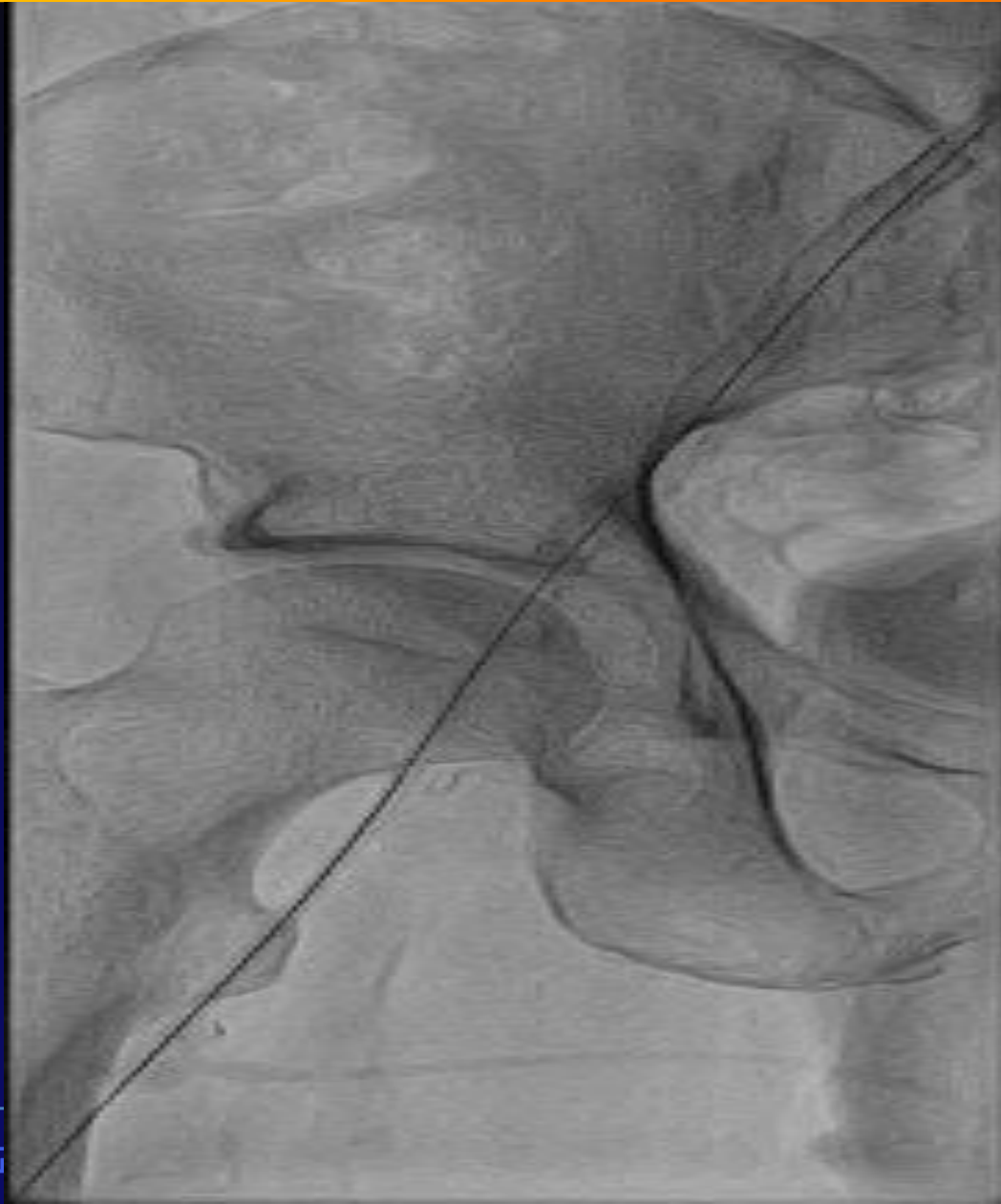
A larger filling defect at
the stent distal edge

A large filling defect at the stent distal edge

A large filling defect

→ Suction using 7 Fr MP guiding

After thrombosuction to stent distal edge



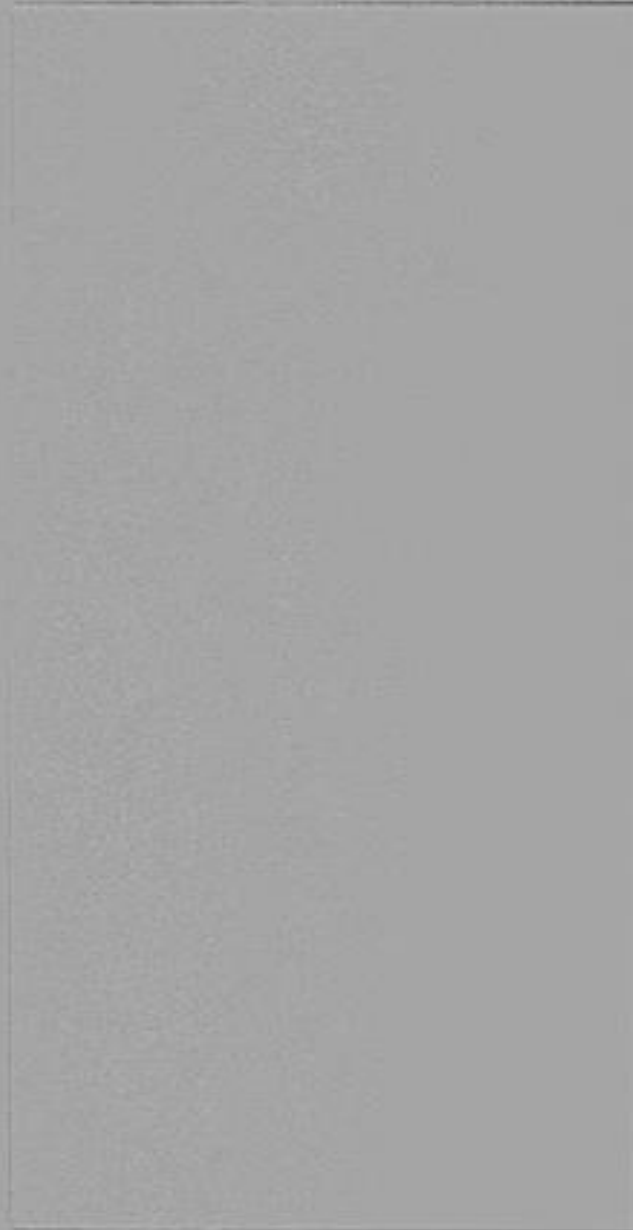
Residual thrombus at
stent distal edge

Thromboembolism in
popliteal artery

Visible peroneal artery

Total occlusion of ATA,
PTA

After thrombosuction to stent distal edge



Acute occlusion due to thromboembolism

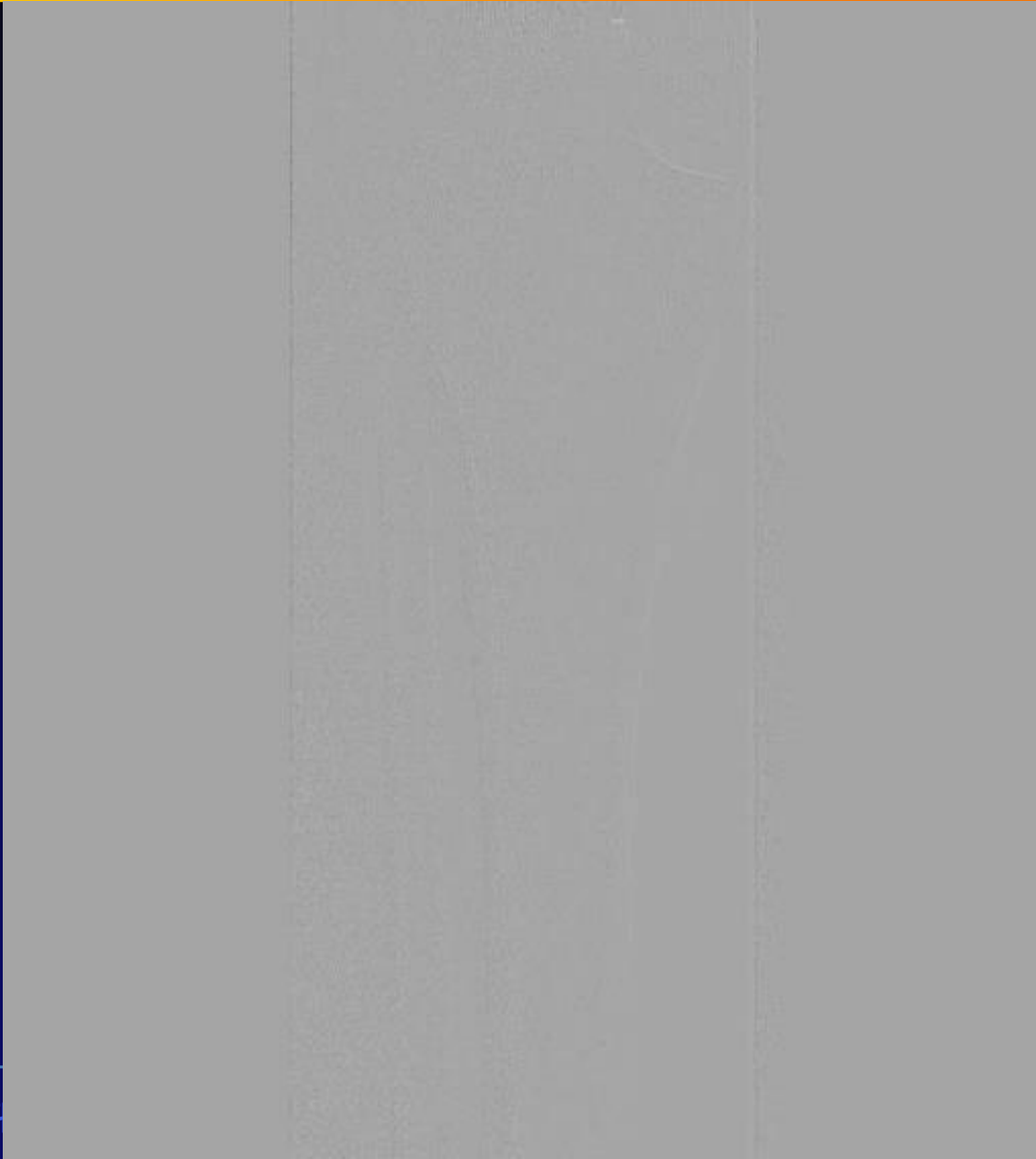
Severe lower leg pain

Morphine
UK 200,000 IU infusion
via cathete

Suction via MP 5Fr
140cm guiding catheter

A red thrombus aspirated

After thrombosuction to popliteal artery bifurcation site

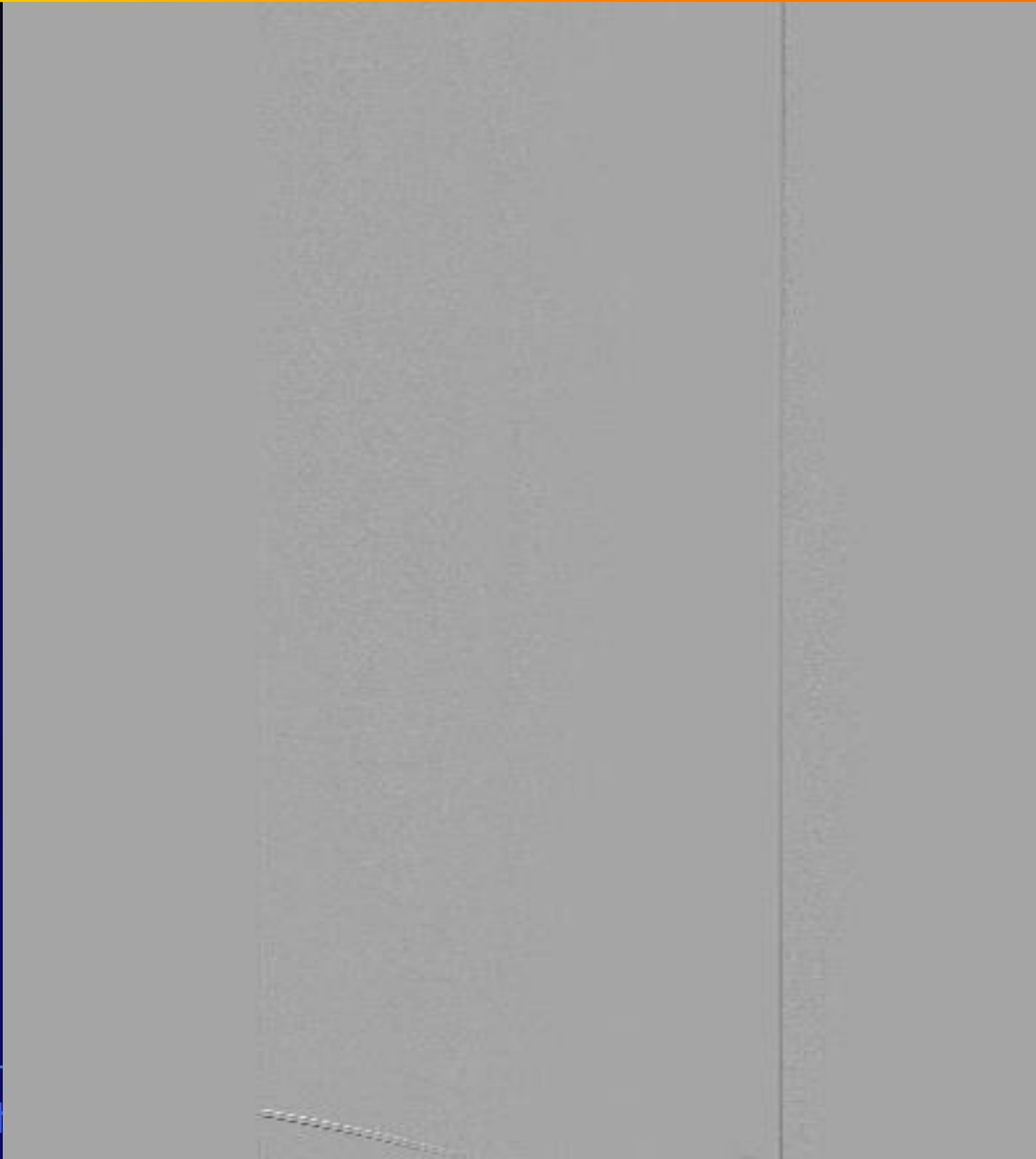


Improved flow

Migrated thrombus

Suction several times

After thrombosuction to ATA



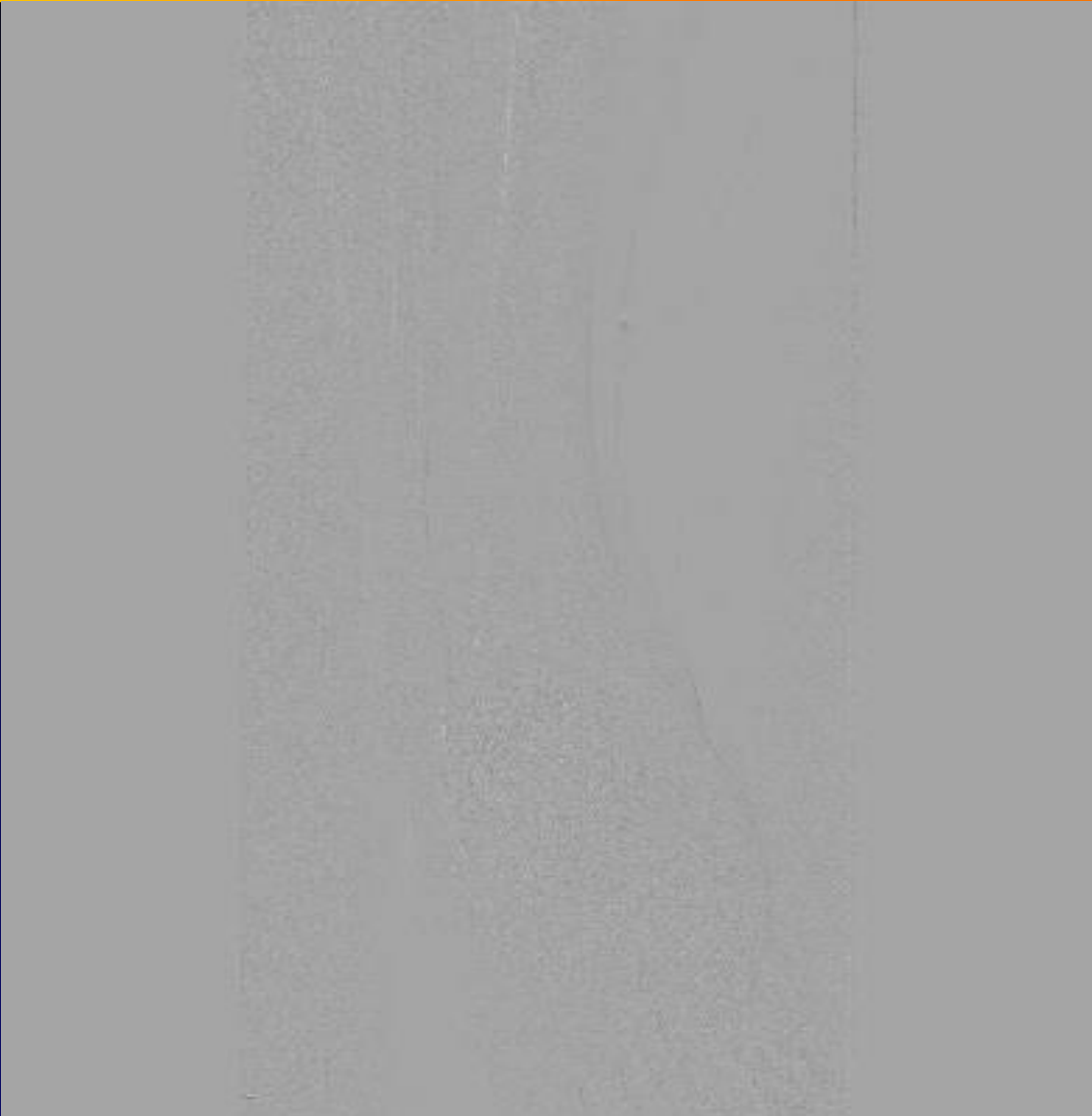
Improved flow

Total thrombotic occlusion of dorsalis pedis artery

Total thrombotic
occlusion of dorsalis
pedis artery

Suction several times

Resolved thrombotic complication



PTA

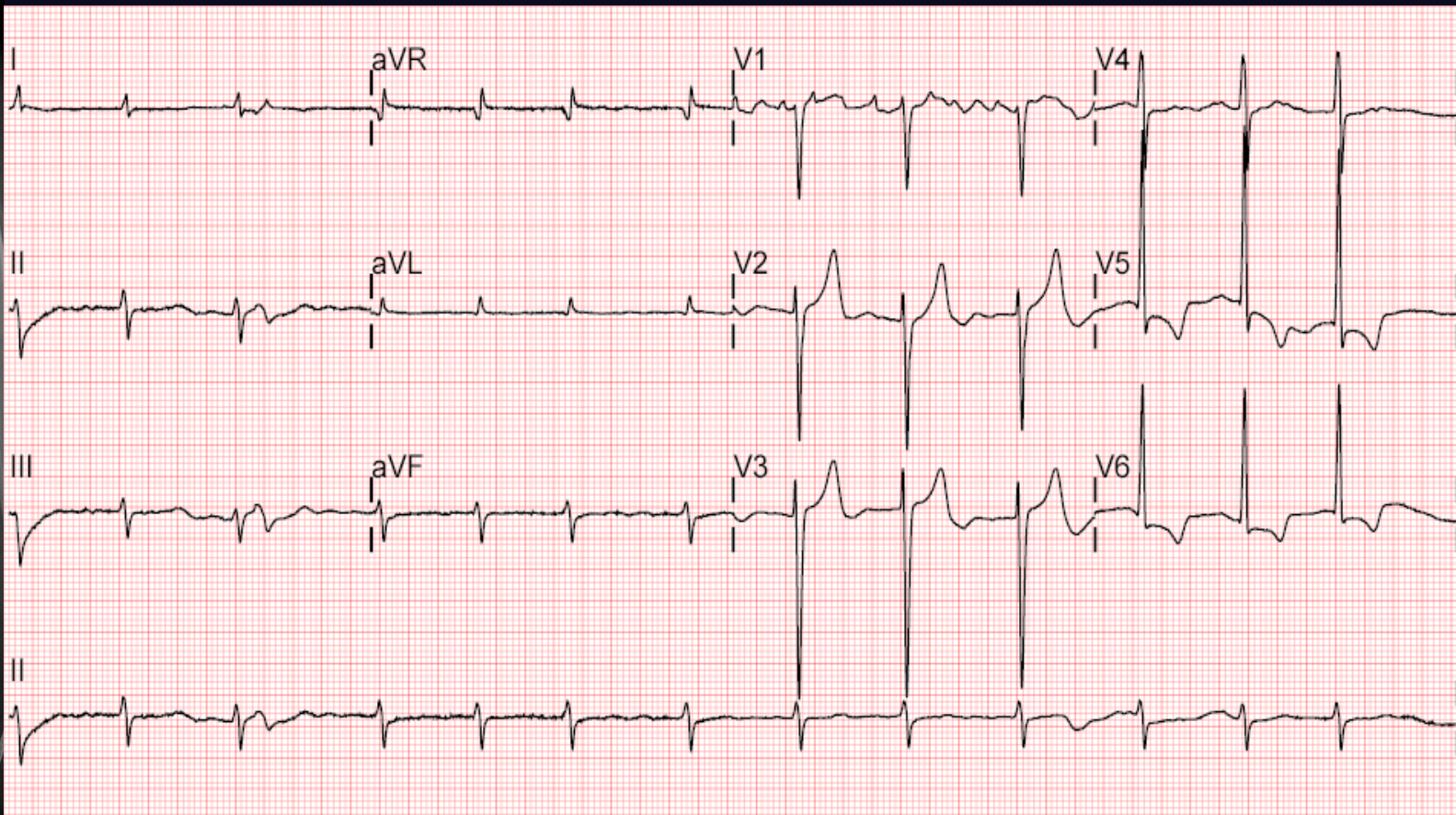
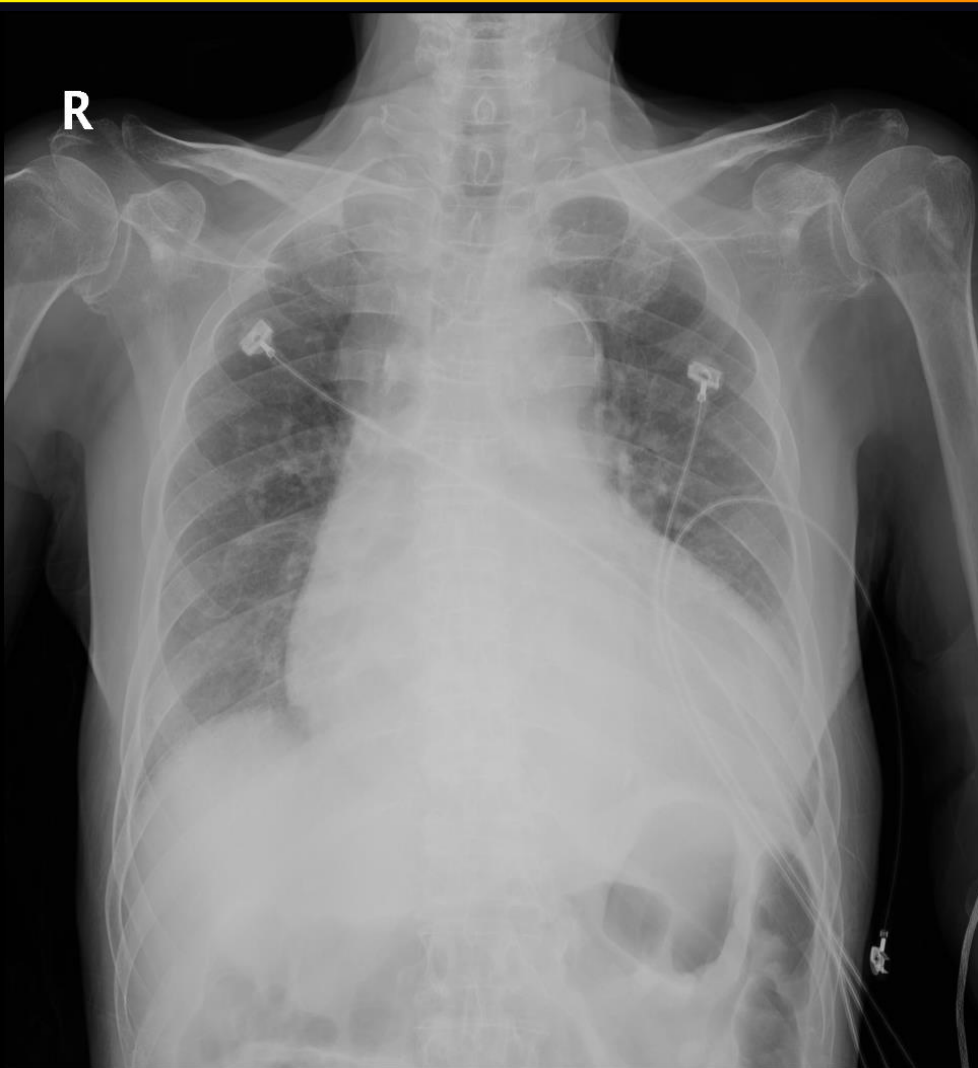
- : Unclear stump
- : No evidence of thrombotic occlusion
- : Retrograde flow from pedal arch

Pain subsided

Keep anticoagulation

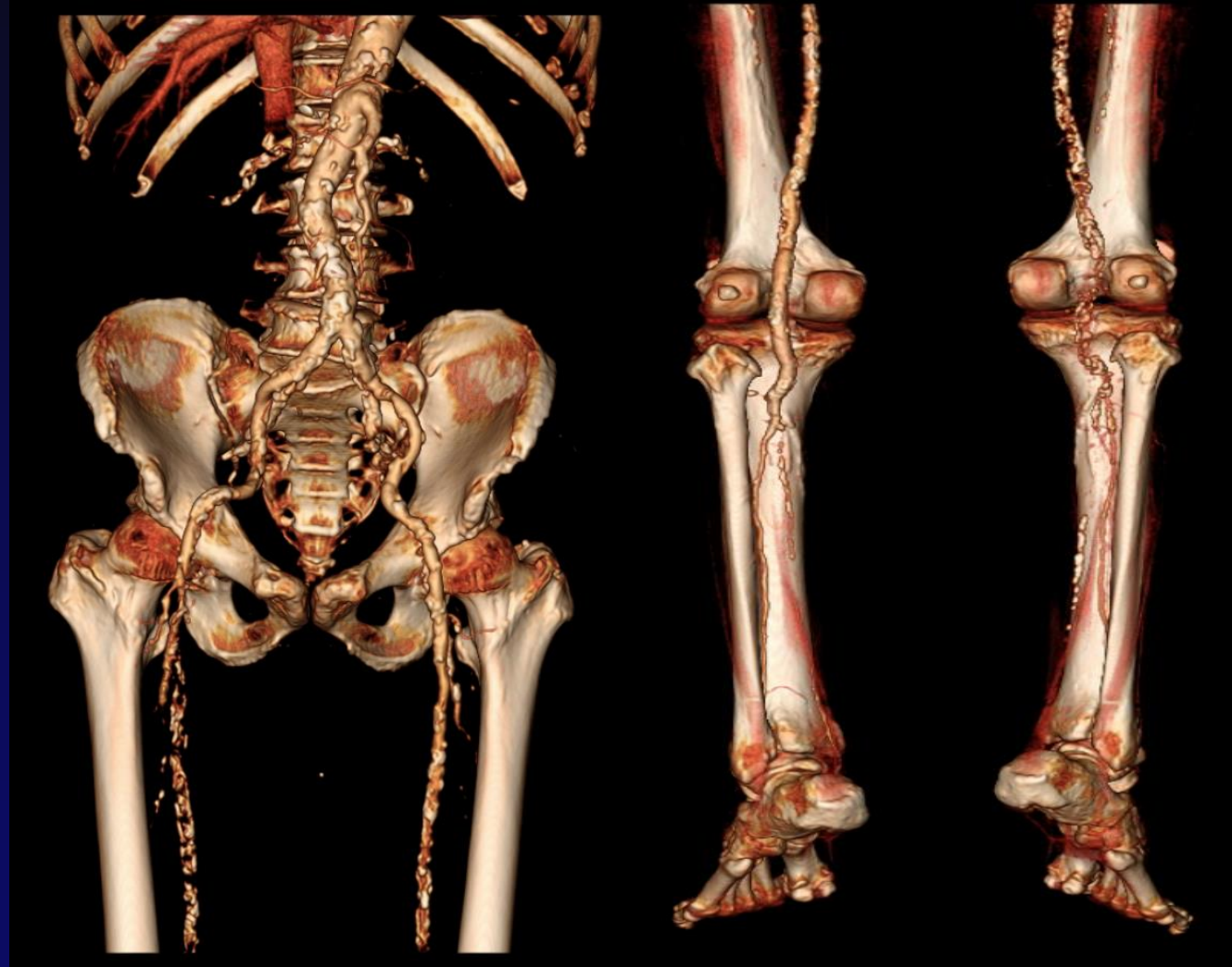
Case 1

- 60 years old male
- Pale and pain in right lower extremity since 6 hours ago
- Hypertension
- Mild sensory loss in right toes and mild motor weakness in the limb



Lower extremity CT Angiography

- Right SFA/ATA/PTA total occlusion



Peripheral angiography : PTA to Rt SFA

- Baseline angiography



Peripheral angiography : PTA to Rt SFA

- Wiring to distal SFA



Peripheral angiography : PTA to Rt SFA

- POBA to SFA (6.0 x 200 mm)



Peripheral angiography : PTA to Rt SFA

- Angiography after POBA



Peripheral angiography : PTA to Rt SFA

- Thrombosuction with 6Fr JR4 catheter



Peripheral angiography : PTA to Rt SFA

- Angiography after POBA



Peripheral angiography : PTA to Rt SFA

- Thrombolysis : Urokinase bolus (250,000 IU)



Peripheral angiography : PTA to Rt SFA

- Final angiography



Peripheral angiography : PTA to Rt SFA

- After emergent PTA
 - Contrast dye amount : 60cc
 - UK 32,000U/hr continuous infusion for 6 hours
 - Rt DPP : very weak, no significant interval change
 - Re-look angiography

RE-LOOK ANGIOGRAPHY

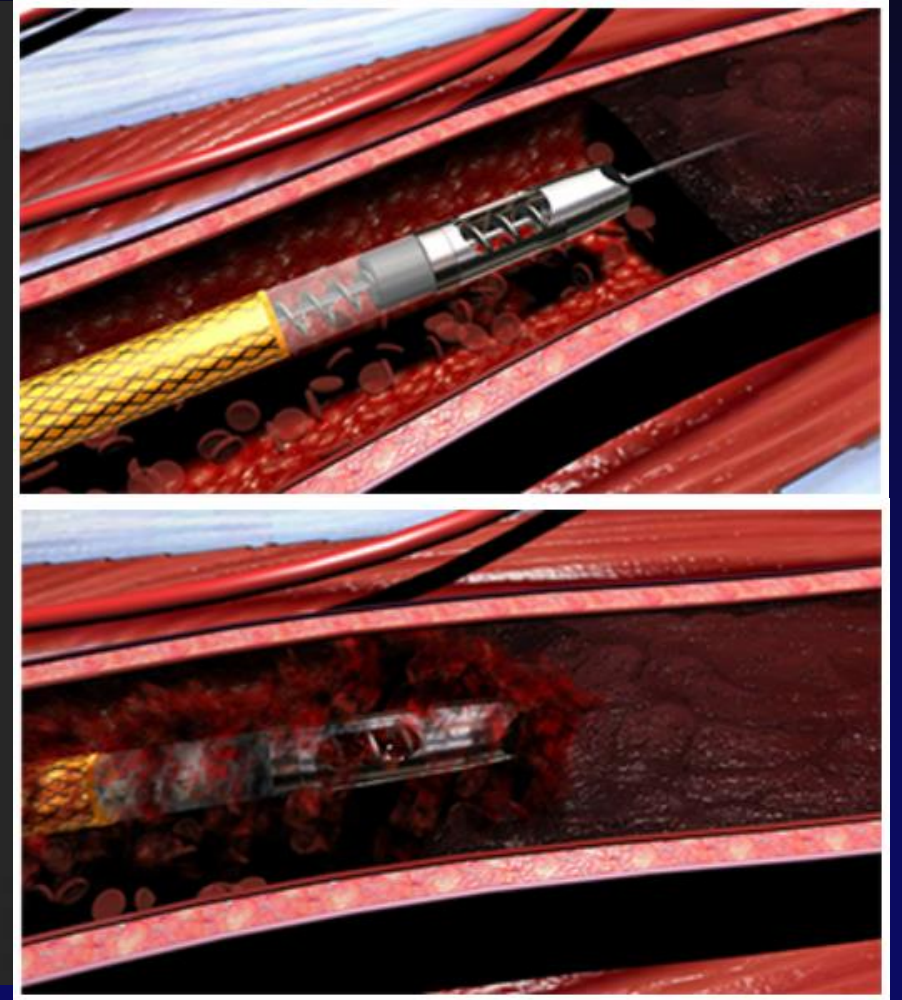
Peripheral angiography : PTA to Rt SFA

- Re-look angiography 6 hours later



Peripheral angiography : PTA to Rt SFA

- ROTAREX[®] thrombectomy catheter apply



Peripheral angiography : PTA to Rt SFA

- Angiography after ROTAREX[®] thrombectomy



Peripheral angiography : PTA to Rt SFA

- Aspirated fragmented thrombus and atheroma



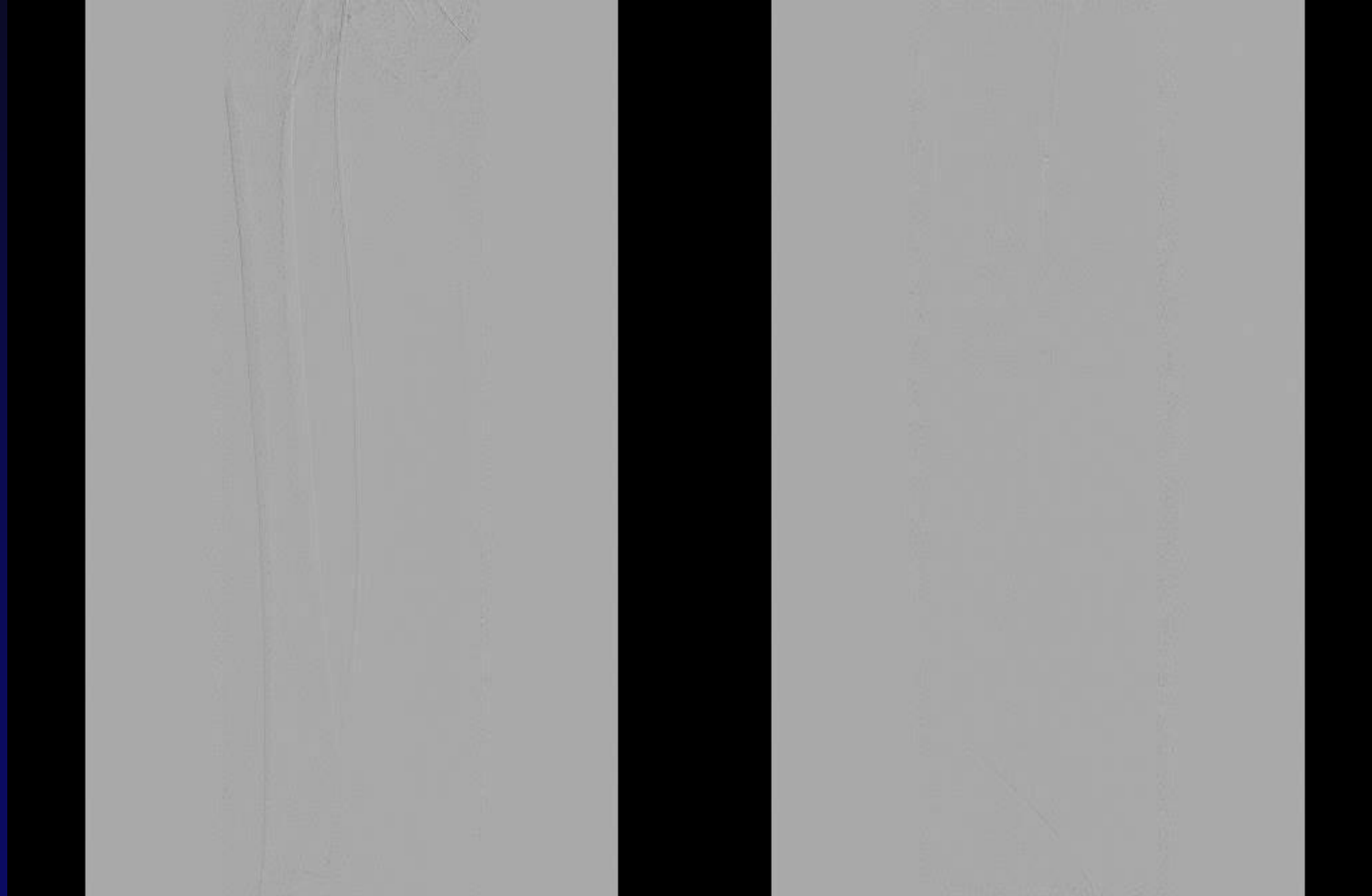
Peripheral angiography : PTA to Rt SFA

- Thrombosuction



Peripheral angiography : PTA to Rt SFA

- Angiography after thrombosuction



Peripheral angiography : PTA to Rt PA

- POBA (3.0 x 120 mm)



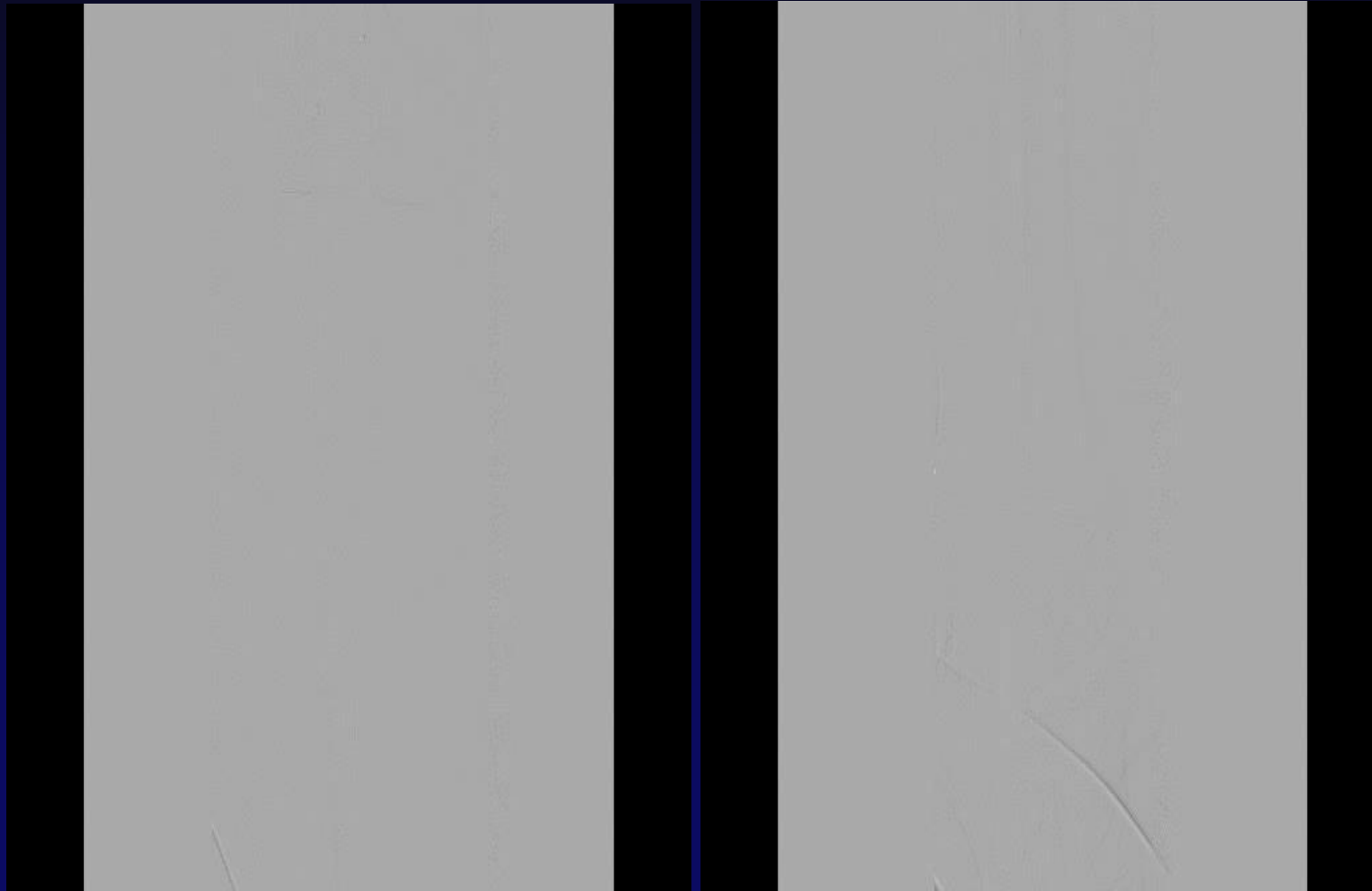
Peripheral angiography : PTA to Rt PA

- POBA (5.0 x 40 mm)



Peripheral angiography : PTA to Rt SFA/PA

- Final angiography



Peripheral angiography : PTA to Rt SFA/PA

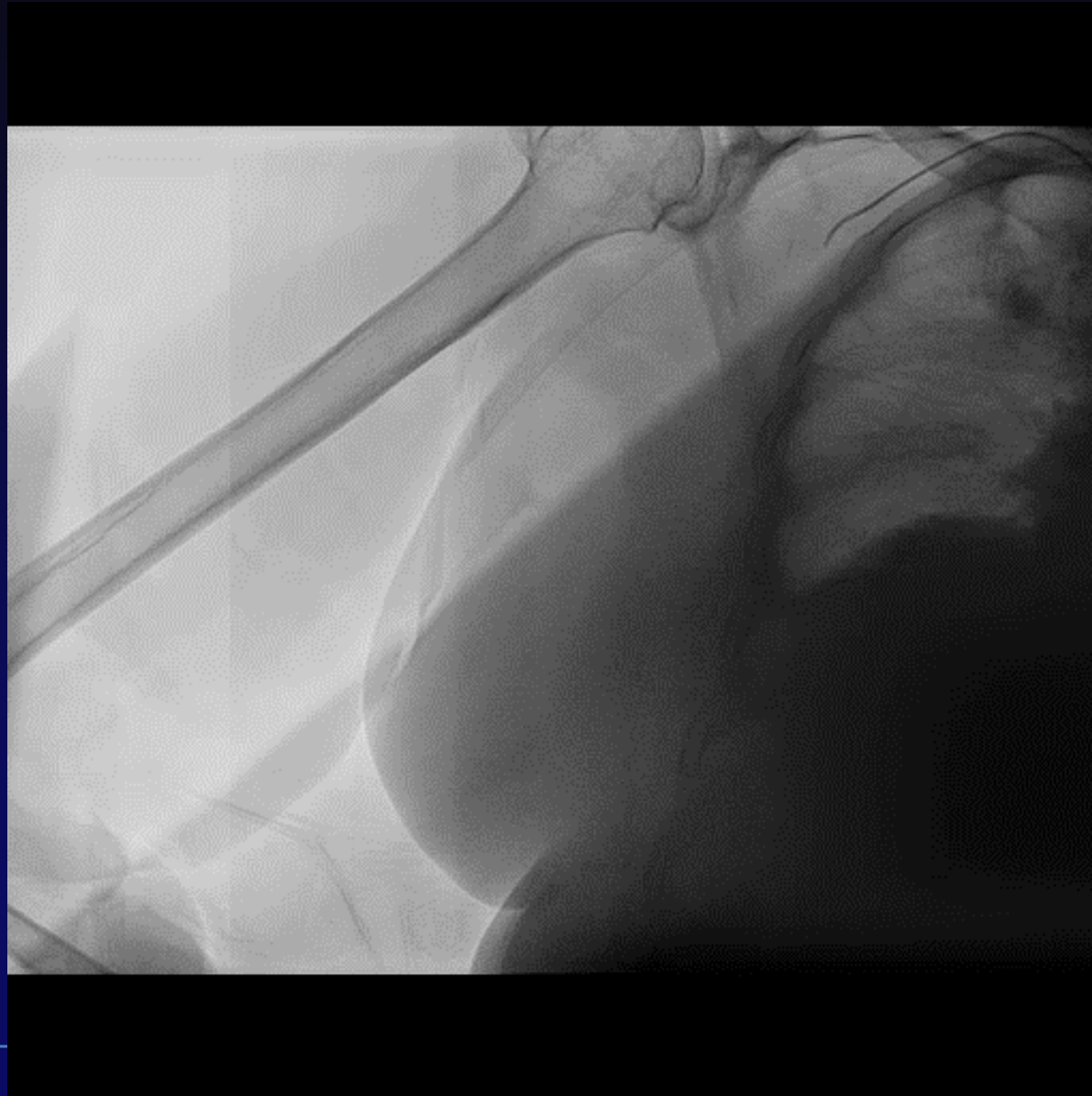
- Final angiography



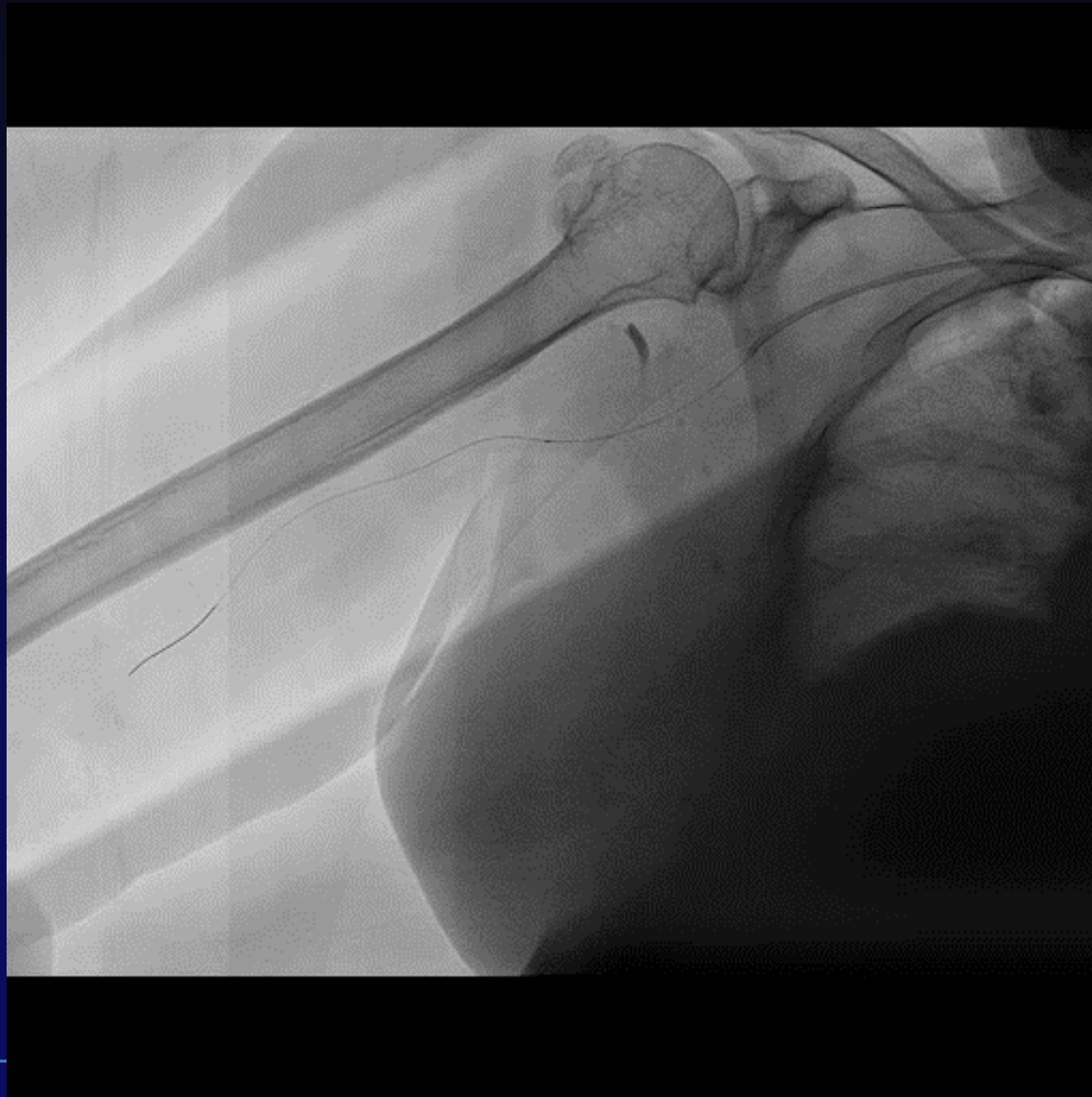
Acute arm ischemia, right due to cardiac embolism

CASE 4

Sudden right arm pain and paralysis at an admission due to heart failure



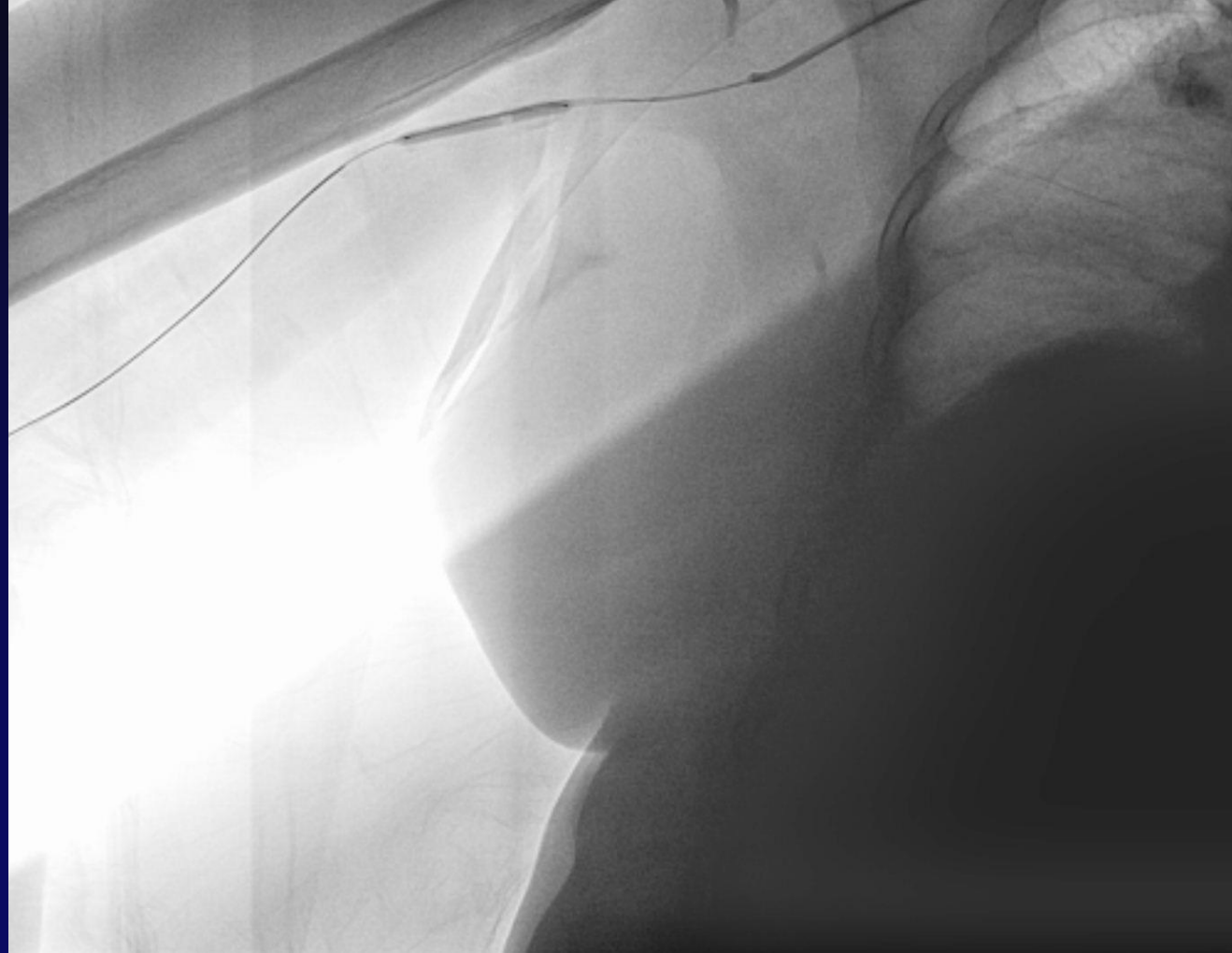
Thrombectomy using thrombuster, coronary aspiration thrombectomy catheter



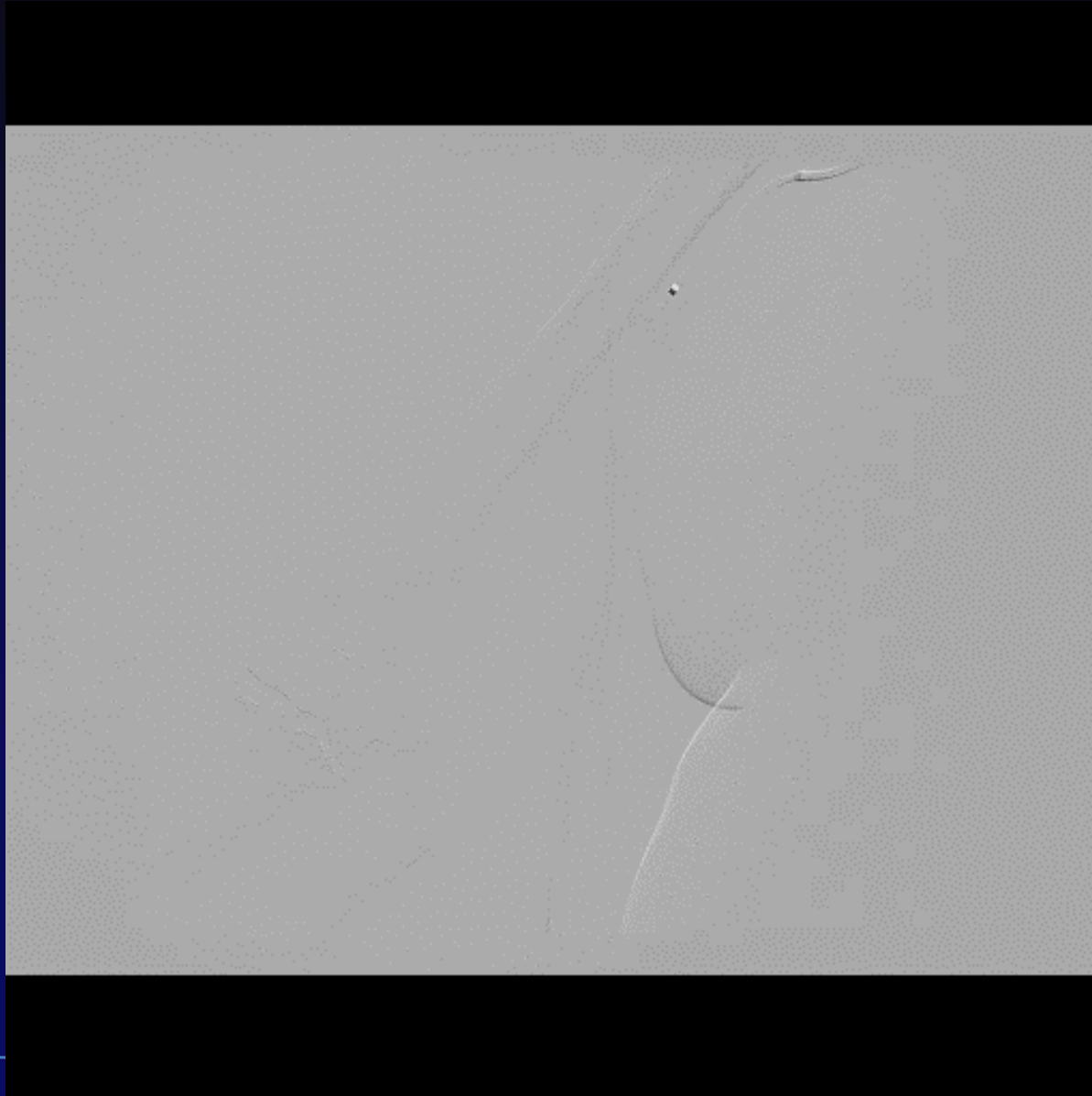
No reperfusion



Repetitive ballooning



No reperfusion



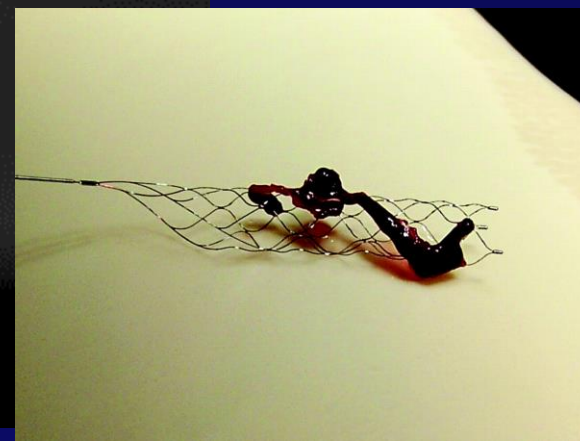
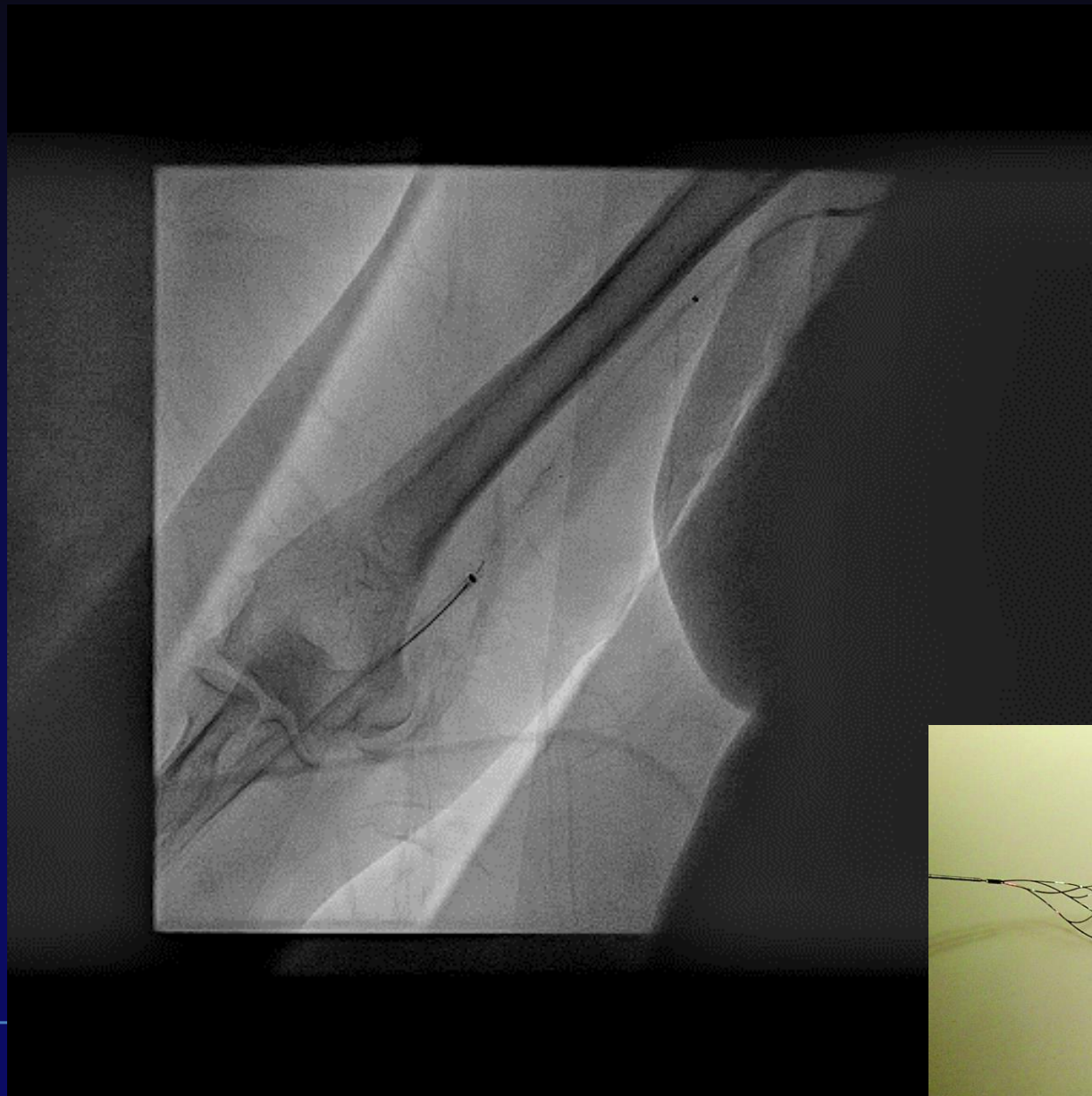
Thrombectomy using 6Fr shuttle sheath via retrograde approach



Ineffective thrombectomy



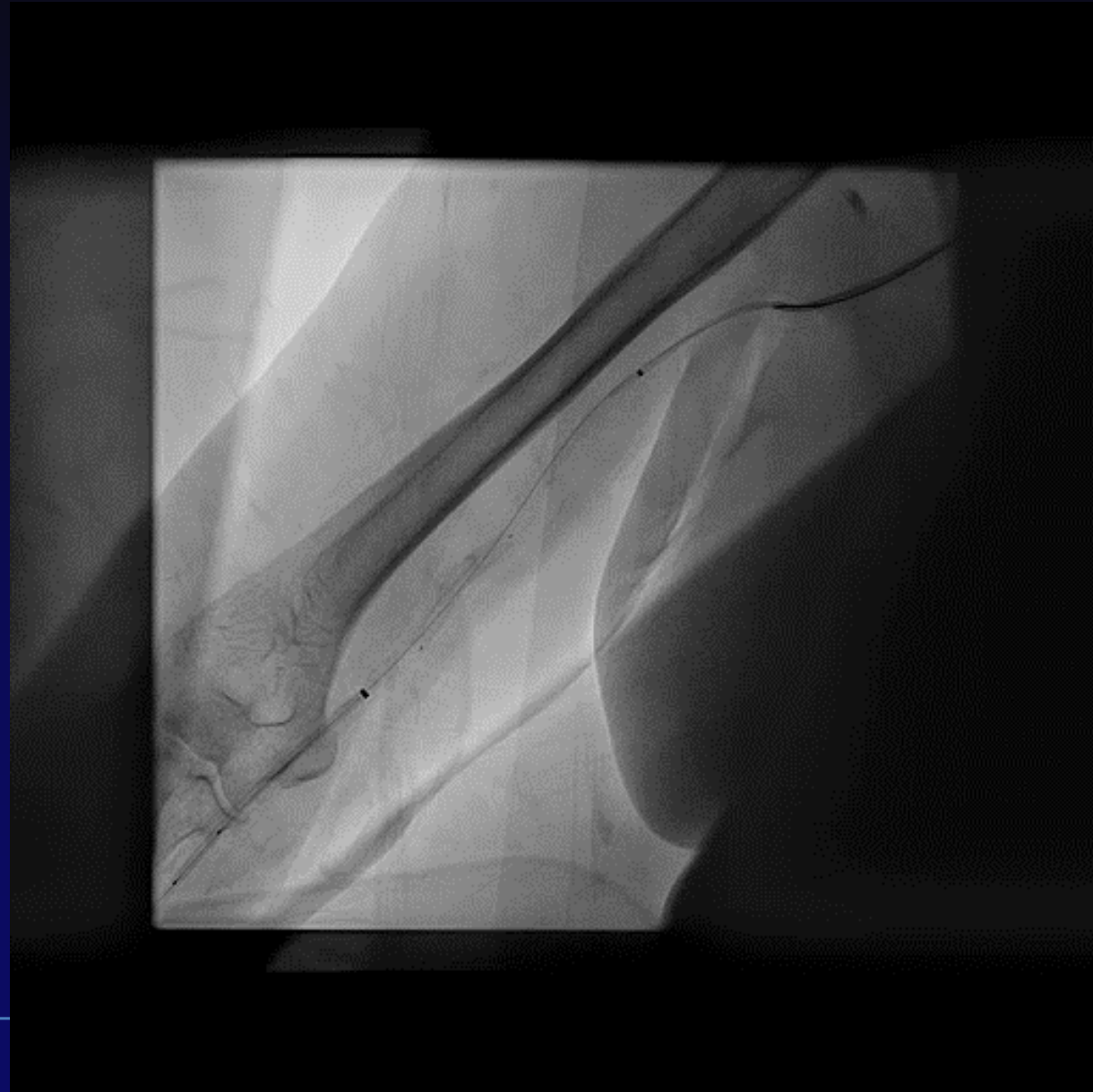
Thrombectomy using Solitaire stent via retrograde approach



Successful reperfusion, but residual stenosis



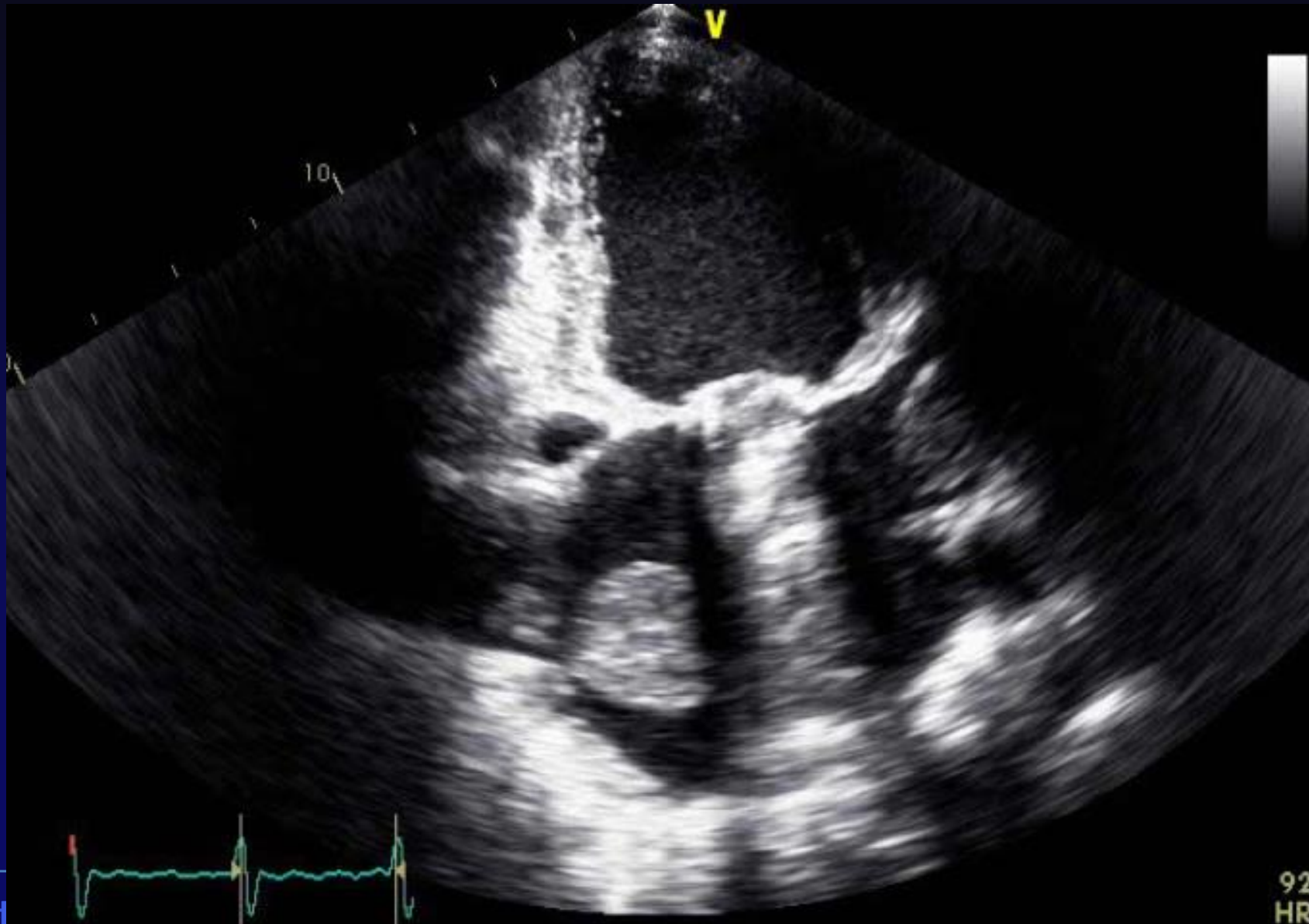
Final angiography after Maris deep 4.0x40mm stenting



Bilateral Acute Limb Ischemia due to cardiac embolism in a patient with DVR and AF

CASE 5

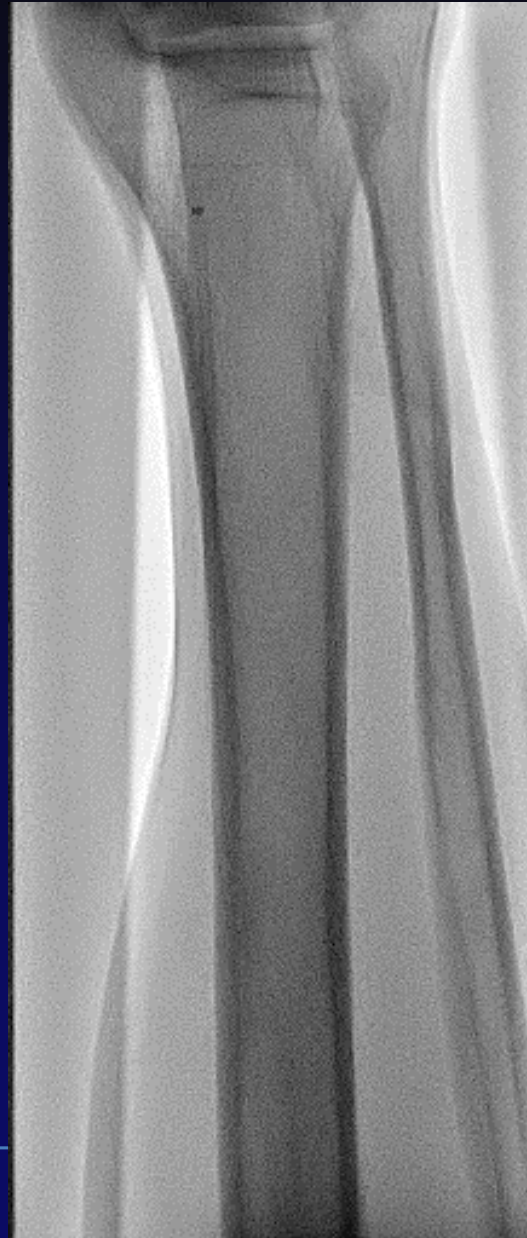
Six Months ago, Two LA thrombi on outside EchoCG



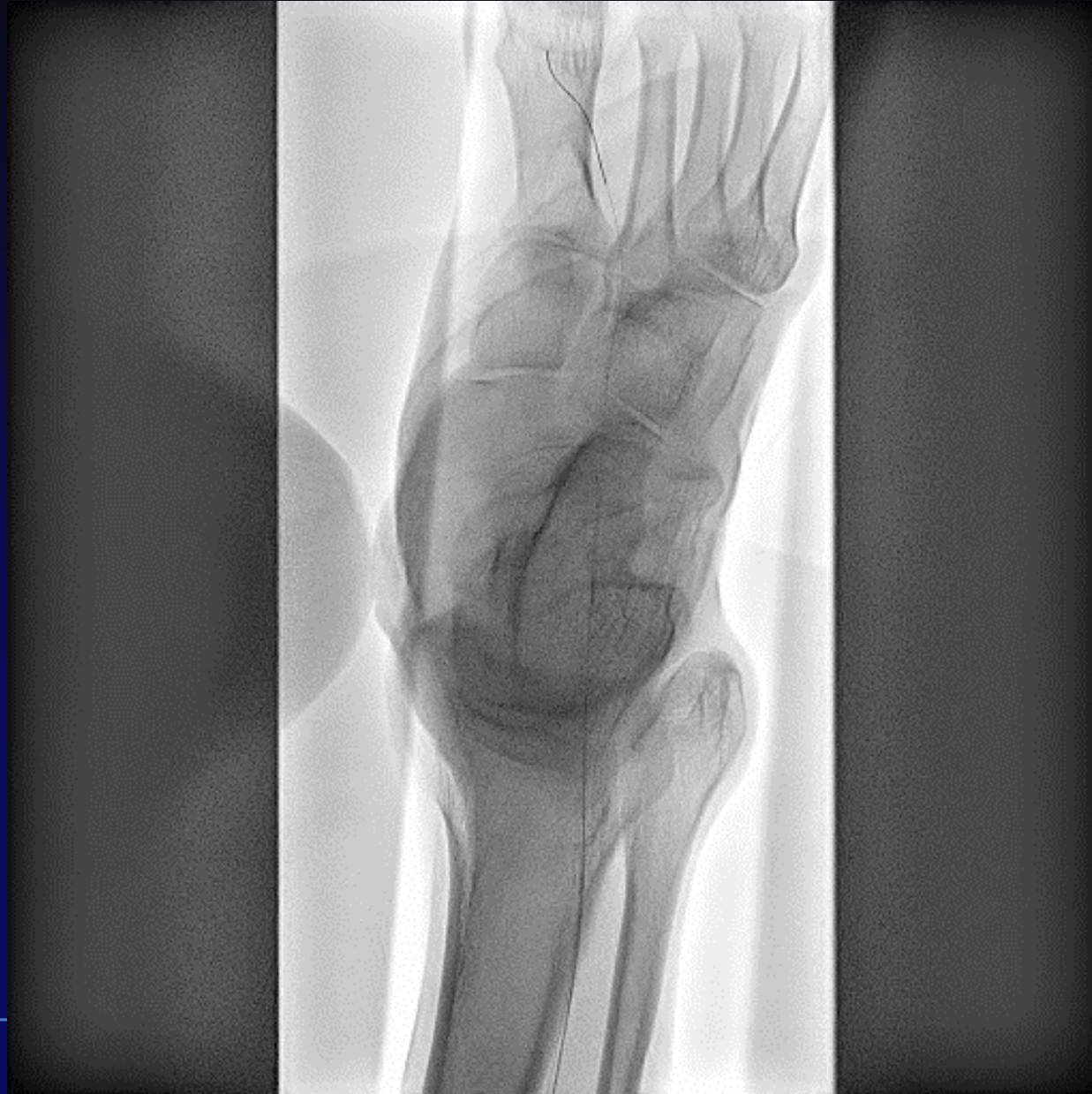
Five P's in both lower extremities and multiple systemic embolism on CT angiography



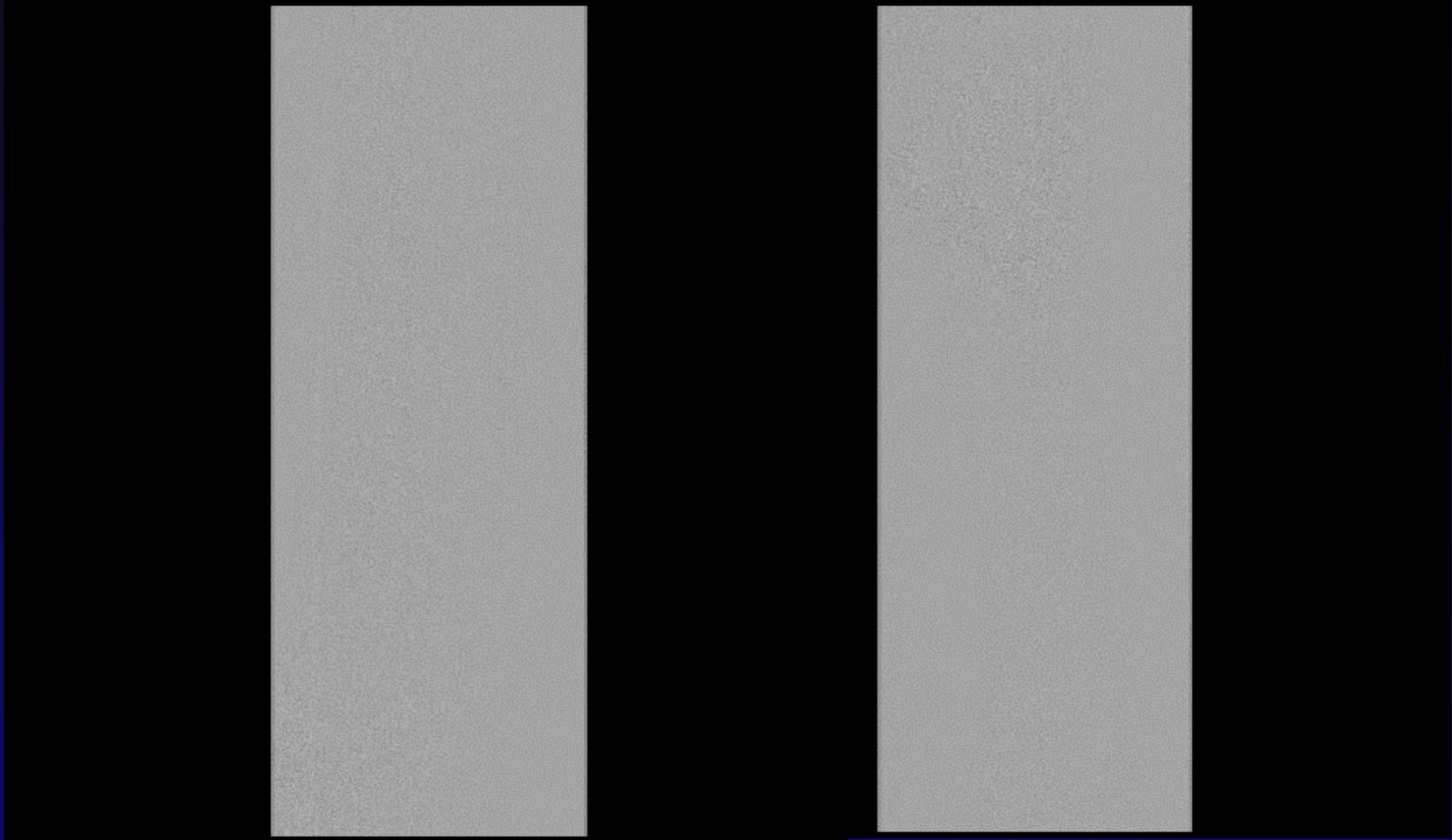
Thrombectomy using antegrade 5Fr shuttle sheath in 7Fr sheath



Thrombectomy using thrombuster device



Final angiography



Aspirated thrombi from left and right

Left limb

Right limb



Hospital course of the feet



Post PTA



Day 3



Day 7

Case 6

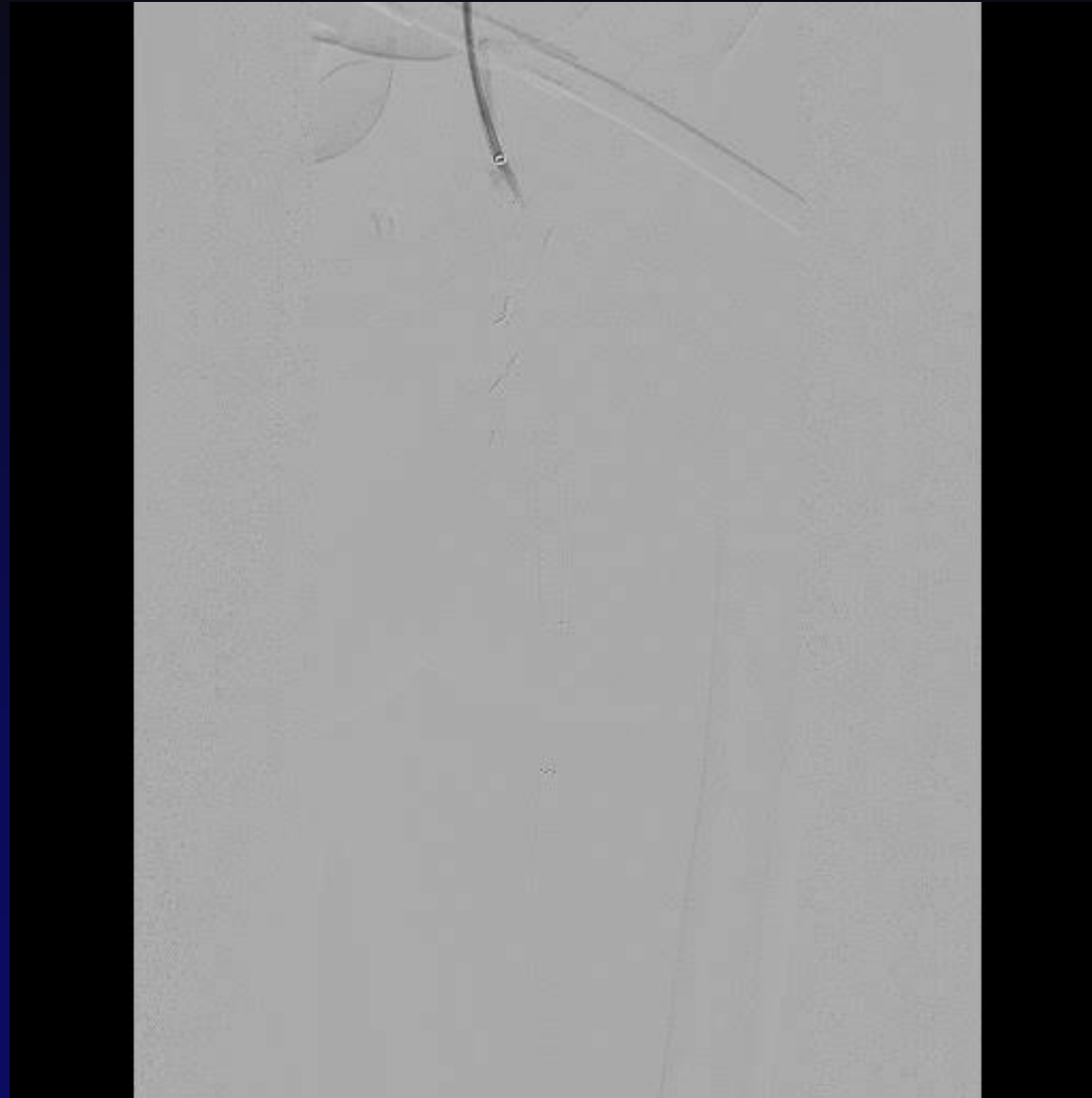
- Endovascular intervention using Zilver PTX in left SFA
- Discharge with DAPT
- One month later, admission for a staged PTA to rt SFA
- ABI (rt 0.62 / lt 0.55)



Thrombotic occlusion at left SFA → UK thrombolysis



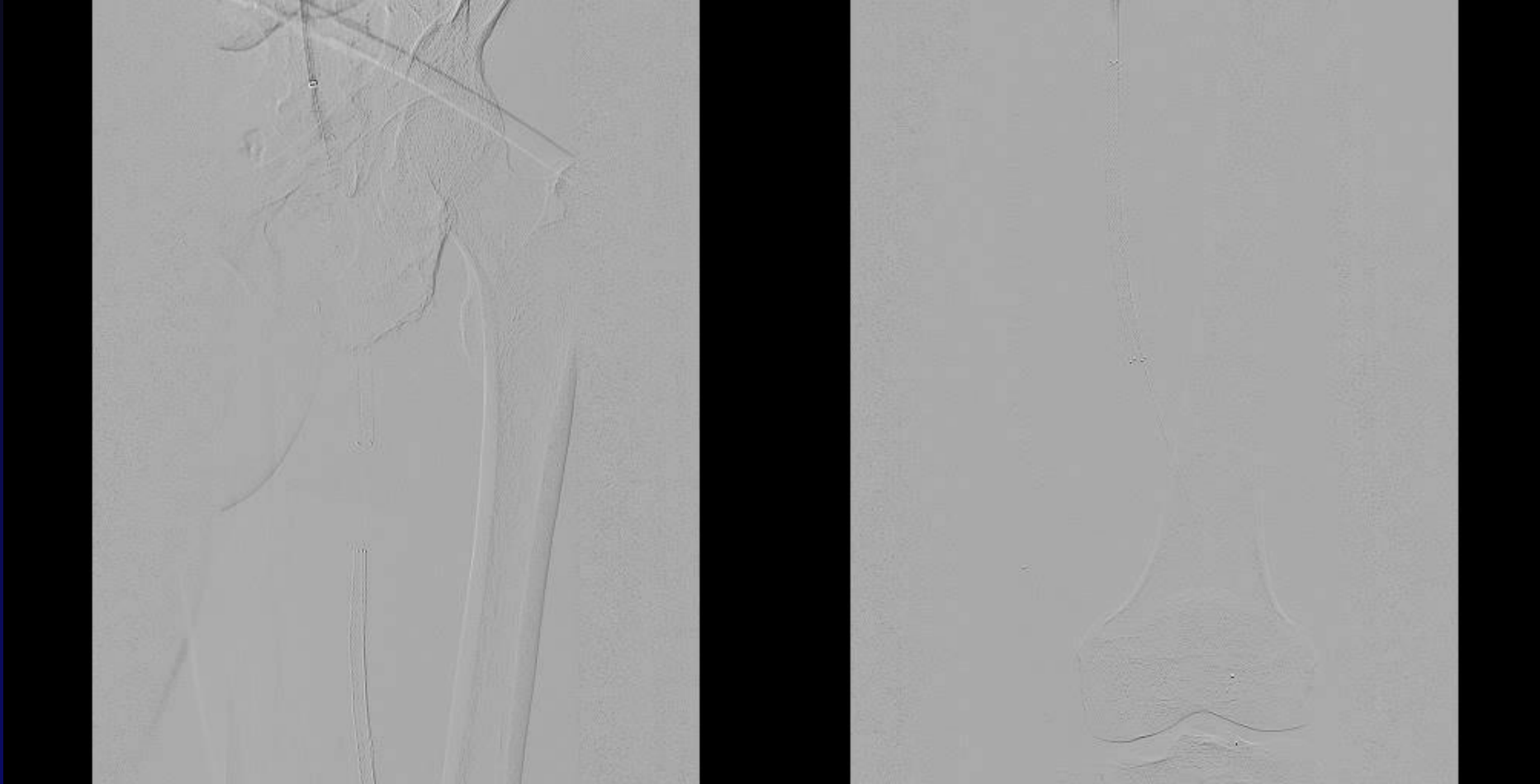
Relook angio: successful thrombolysis



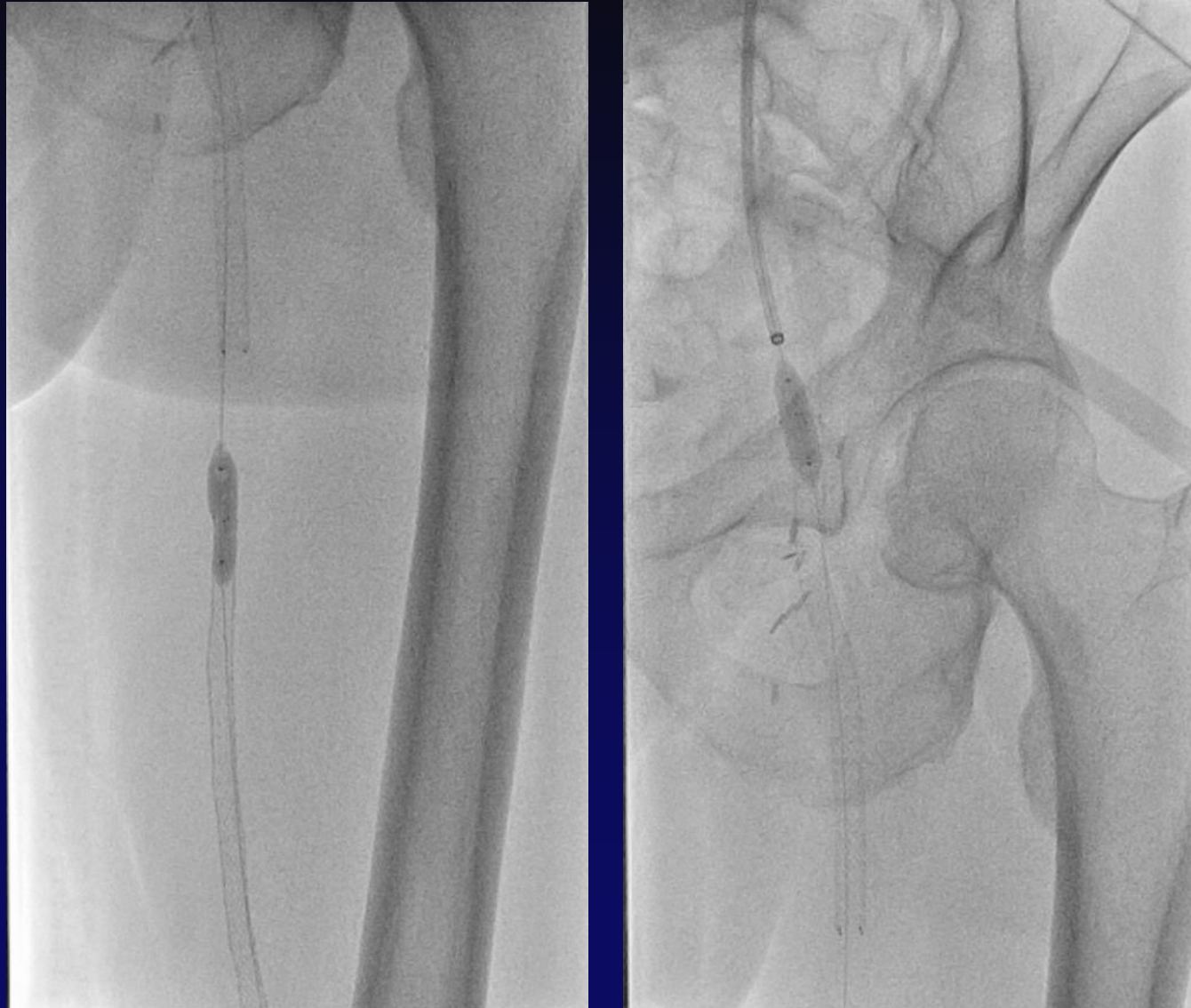
Balloon angioplasty at SFA os - mSFA



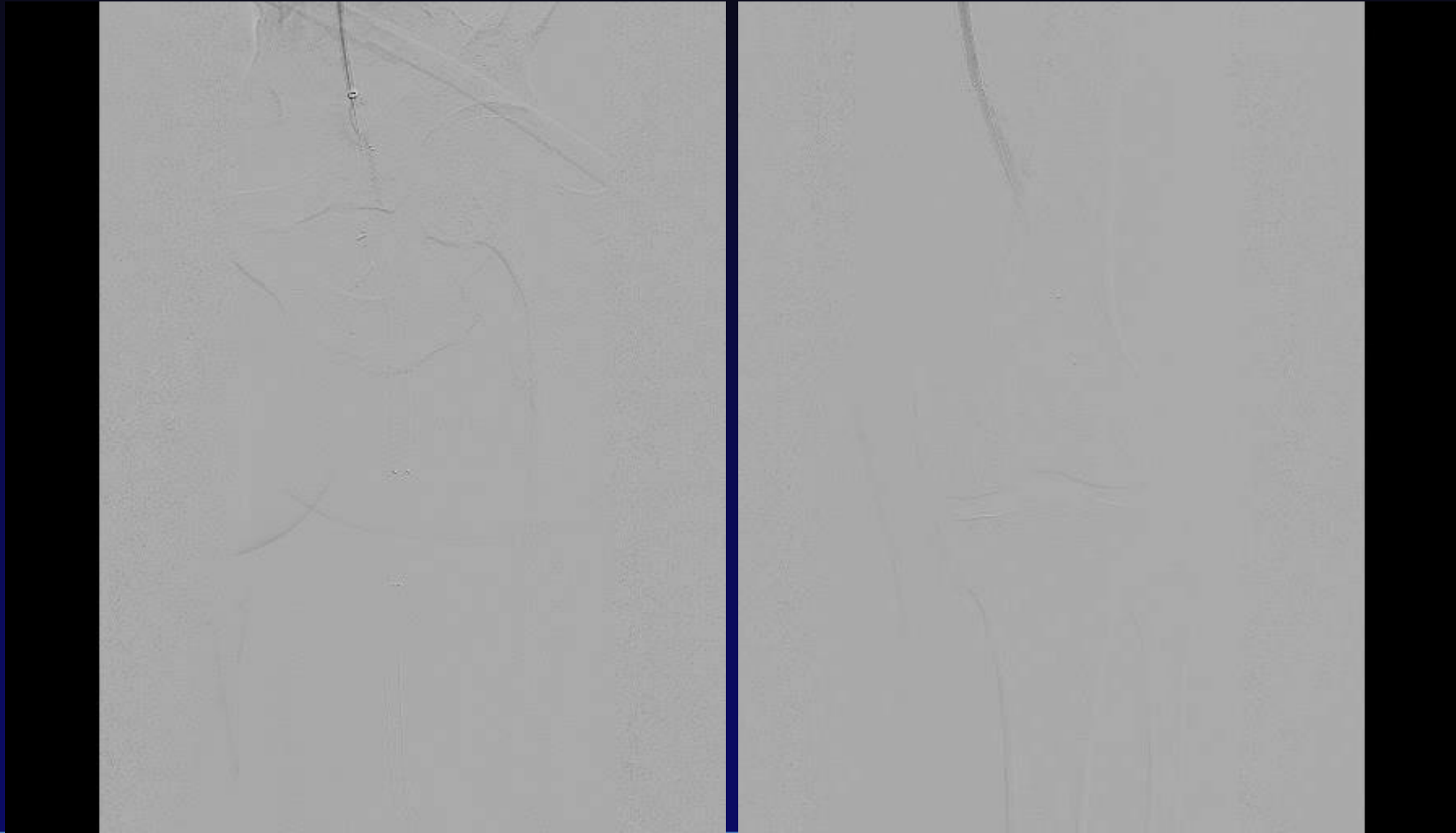
Residual stenoses



Cutting balloon angioplasty at SFA os - mSFA



Final angiography



Discharge medication

- Discharge medication
 - Norvasc 5mg tab (Amlodipine besylate) 1 tab [P.O] qd pc X30 Days
 - Lipinon 10mg tab (Atorvastatin) 1 tab [P.O] qd pc X30 Days
 - Xarelto 10mg tab (Rivaroxaban) 0.5 tab [P.O] bid pc X30 Days
 - Curan 150mg tab (Ranitidine) 1 tab [P.O] qd hs X30 Days
 - Plavix 75mg tab (Clopidogrel) 1 tab [P.O] qd pc X30 Days
 - Aspirin 100mg tab 1 tab [P.O] qd pc X30 Days

- 2018. 4. 17. PostPTA 1month ABI (rt 0.64 / lt 0.95)

Clinical courses

- 2018. 6. 9. CT angio: patent stent
- 2018. 6. 26.
- Low right ABI (rt 0.58 / lt 0.94)
- Maintenance with
 - Xarelto 15mg po qd
 - Cilostazol 200mg po qd

