

TCTAP 2018

A complicated coronary case

28/4/2018

Dr. Ivan Tsang

MBBS (HK), MRCP (UK), FHKCP, FHKAM (Medicine)

Resident Specialist

Princess Margaret Hospital

Hong Kong

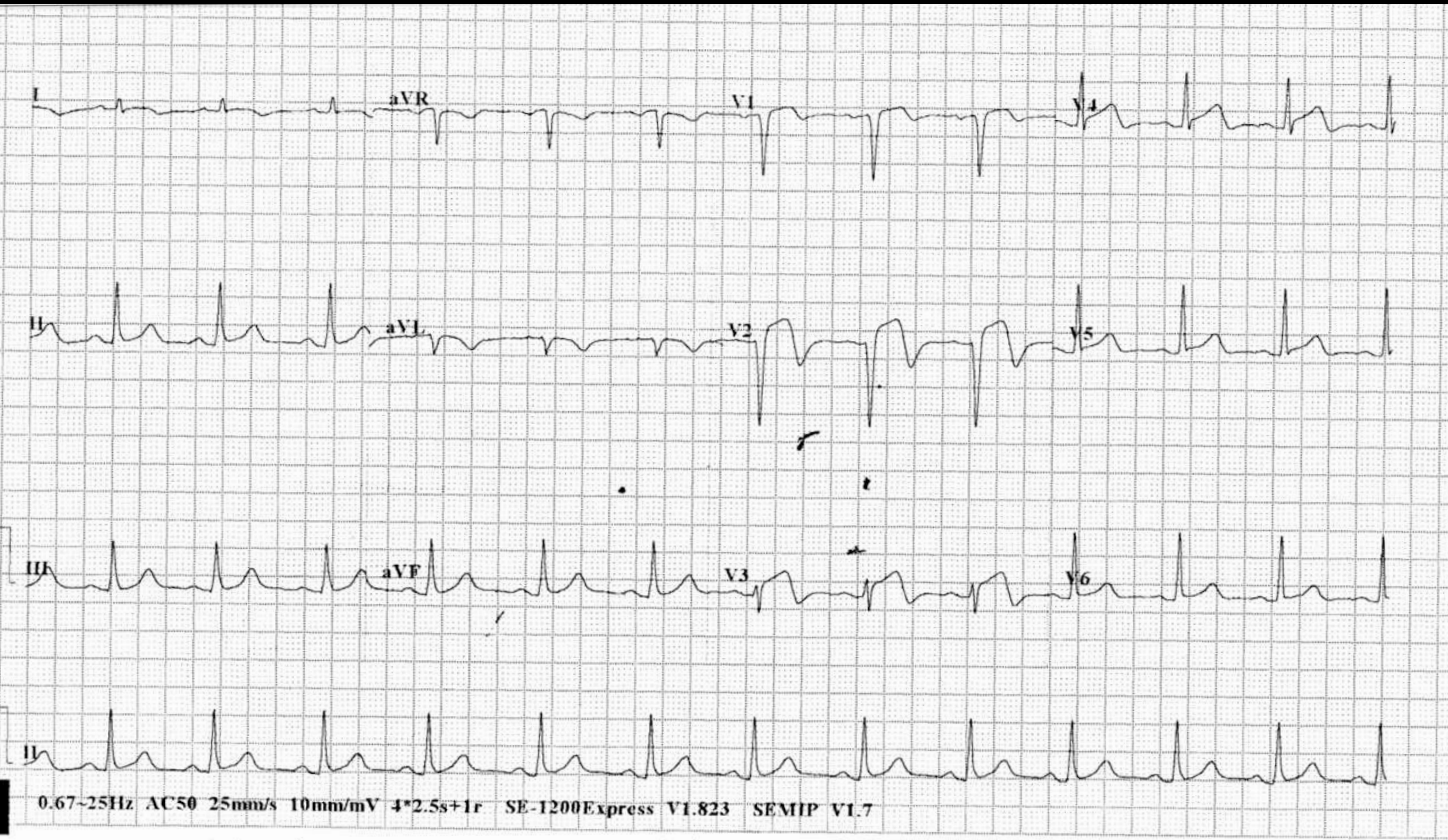




History

- 57/M
- DM
- Admitted for delayed presentation of anterior STEMI
 - onset of pain 3 days ago

ECG: sinus rhythm; ST elevation over anterior leads



First hsTnl: 56100ng/L

History

- ECHO: EF 50%, anterior and apical severe hypokinetic
- Thrombolytic not given
- Treated with DAPT and LMWH
- Coronary angiogram arranged

pLAD heavy thrombus load 95%


RRA approach
5Fr Tiger II

dLCx 90%

RCA normal



Thrombus

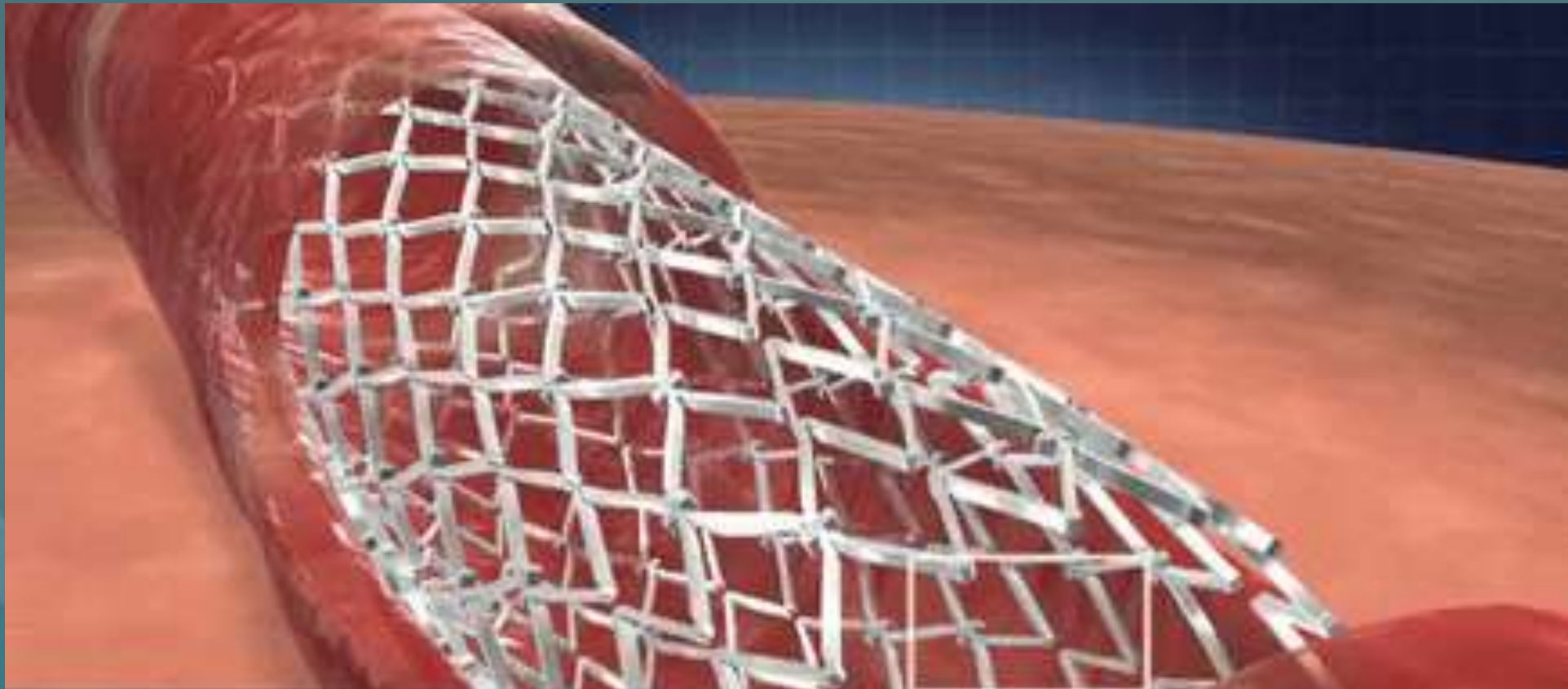


LAD was wired with 0.014"
Runthrough floppy wire

Deployment of self expanding DES at
pLAD up to 12atm (nominal pressure)

Self expanding DES

- Continue to expand over time to remain apposed to vessel, even if there is positive remodelling or dissolution of thrombus





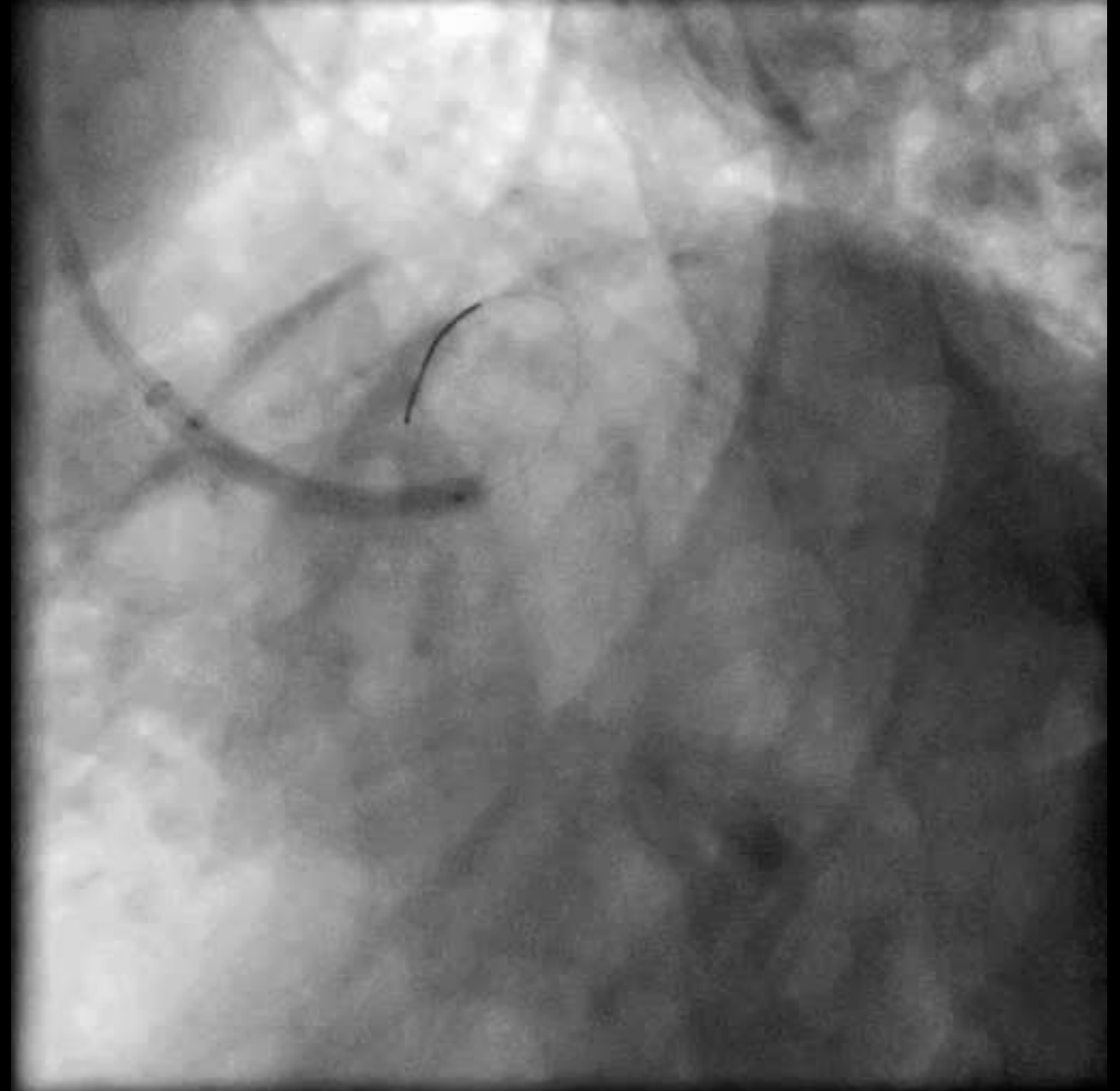
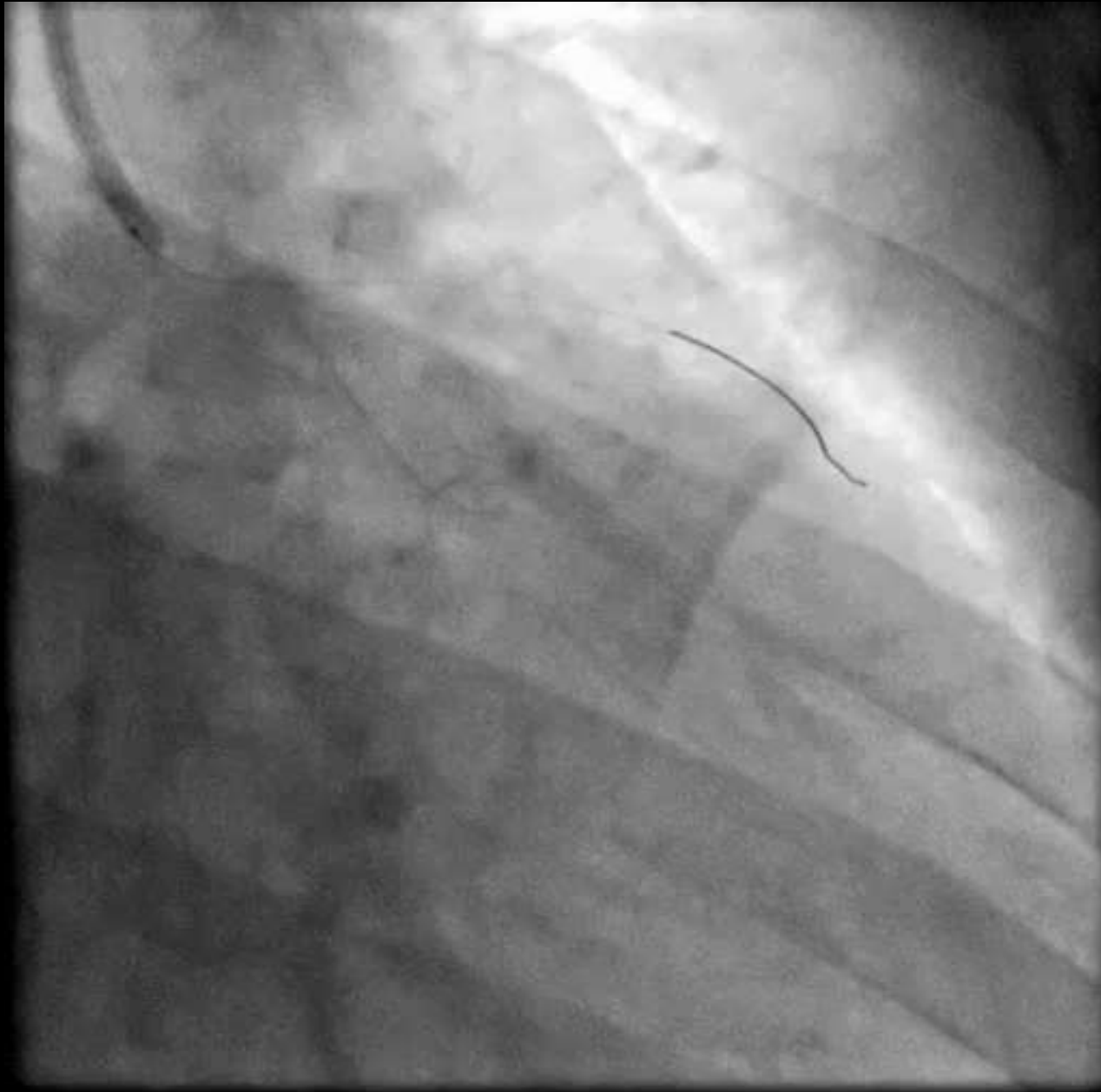
What happened?

Slow motion?

Disaster #1

- Patient developed severe chest pain, ECG showing ST elevation, and blood pressure drop
- Repeatedly aspirated and deflated, also inflated balloon at higher pressure (i.e. 14atm) and deflate
- However, the stent balloon just failed to deflate, obstructing the LM/LAD flow

Whole system removed enbloc



Back to step 1

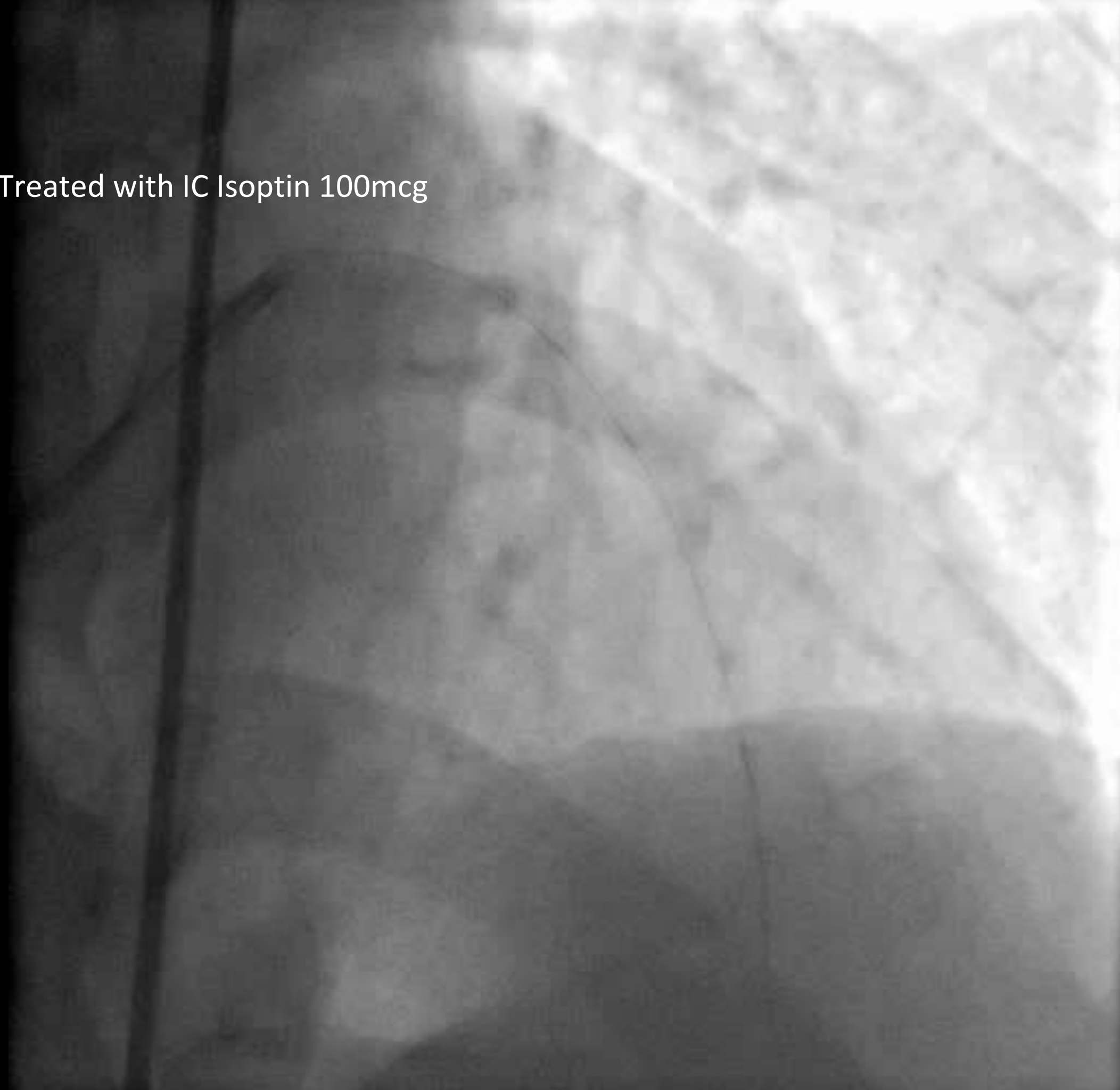
- Right femoral access
- LM engaged with 6Fr EBU 3.75



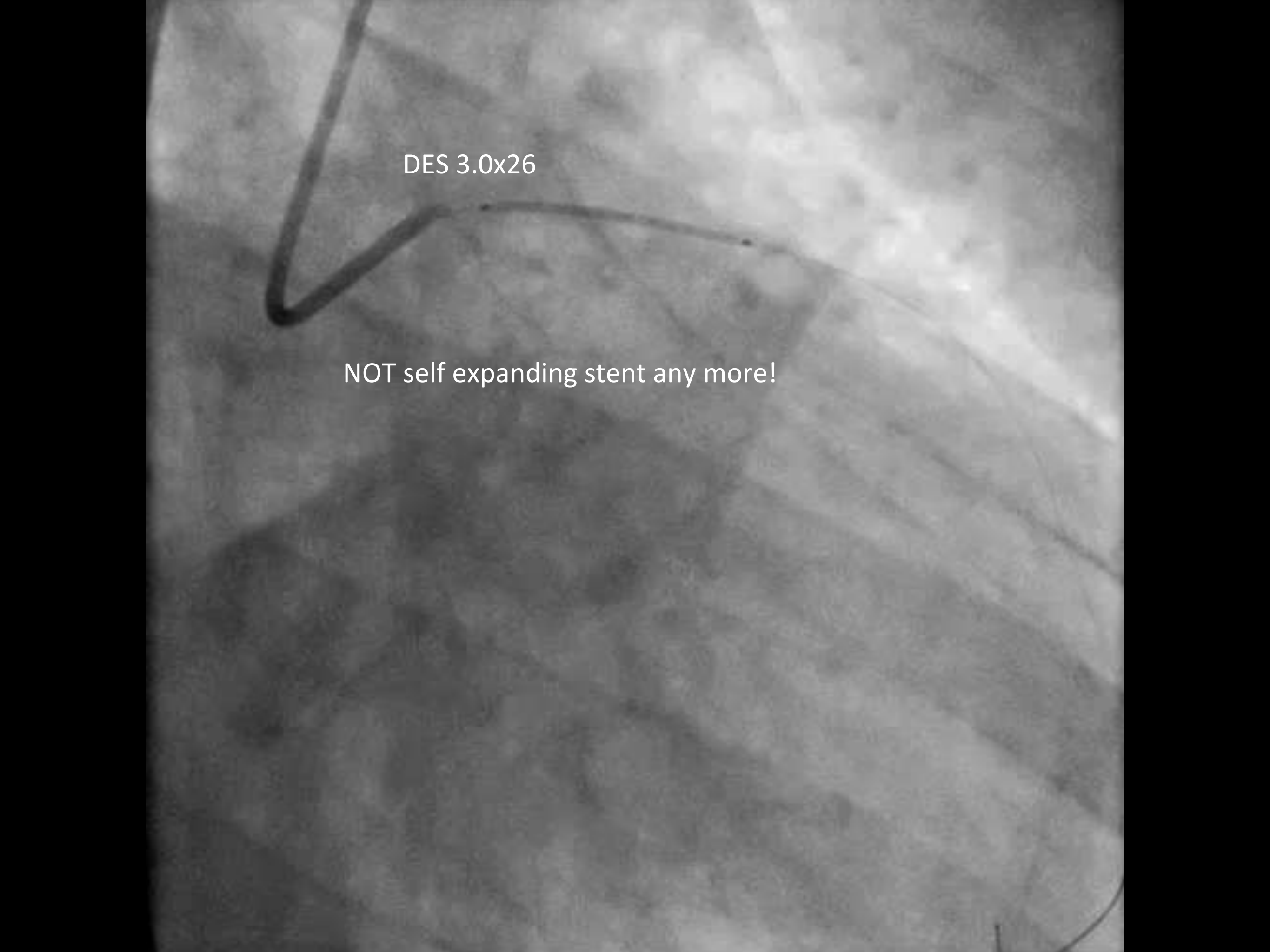
LAD wired with Runthrough guidewire

Evidence of no reflow

Treated with IC Isoptin 100mcg



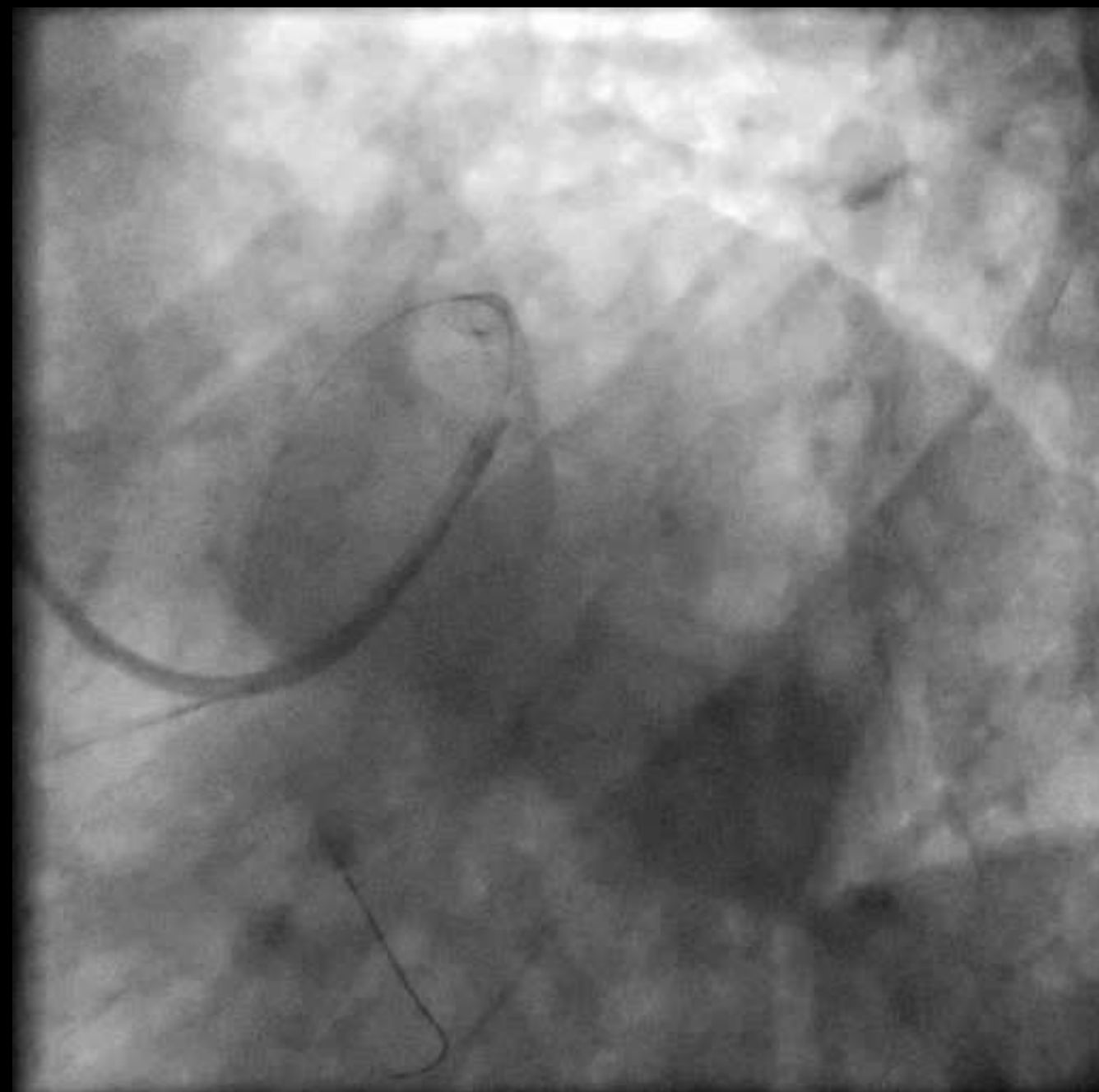
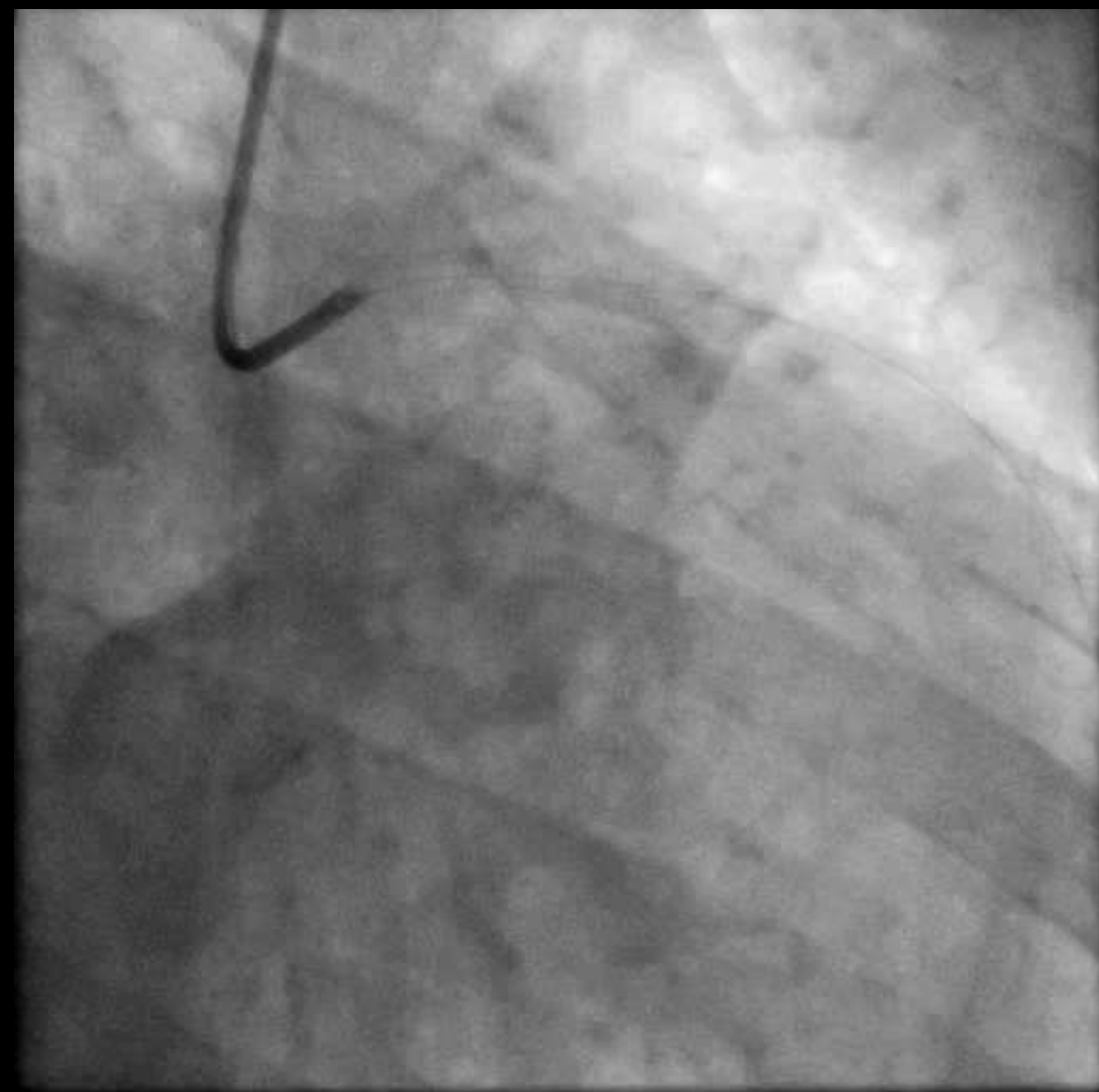




DES 3.0x26

NOT self expanding stent any more!

IVUS showed no dissection and good apposition

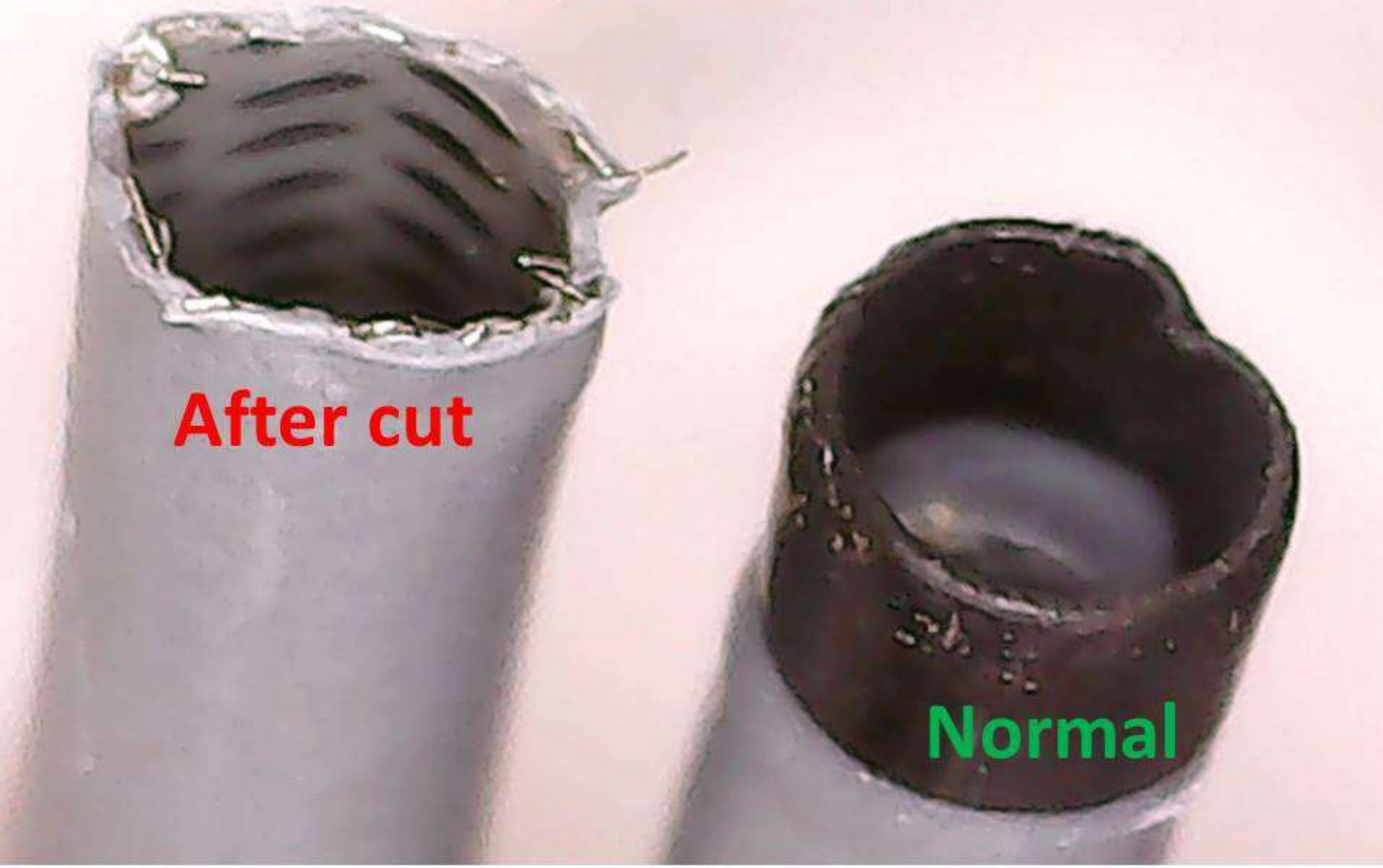


Removal of undeflatable balloon

- The shaft of the stent balloon was cut
- ST-01 catheter (Terumo)
- Mother-in-child catheter
- Cut the tip with the metal part exposed



Tip of Terumo Heartrail II guiding catheter 5F ST01 120cm



After cut

Normal



Pull on the balloon

Rotate the ST-01 catheter

Balloon punctured by the ST-01 catheter

And recaptured into the radial sheath



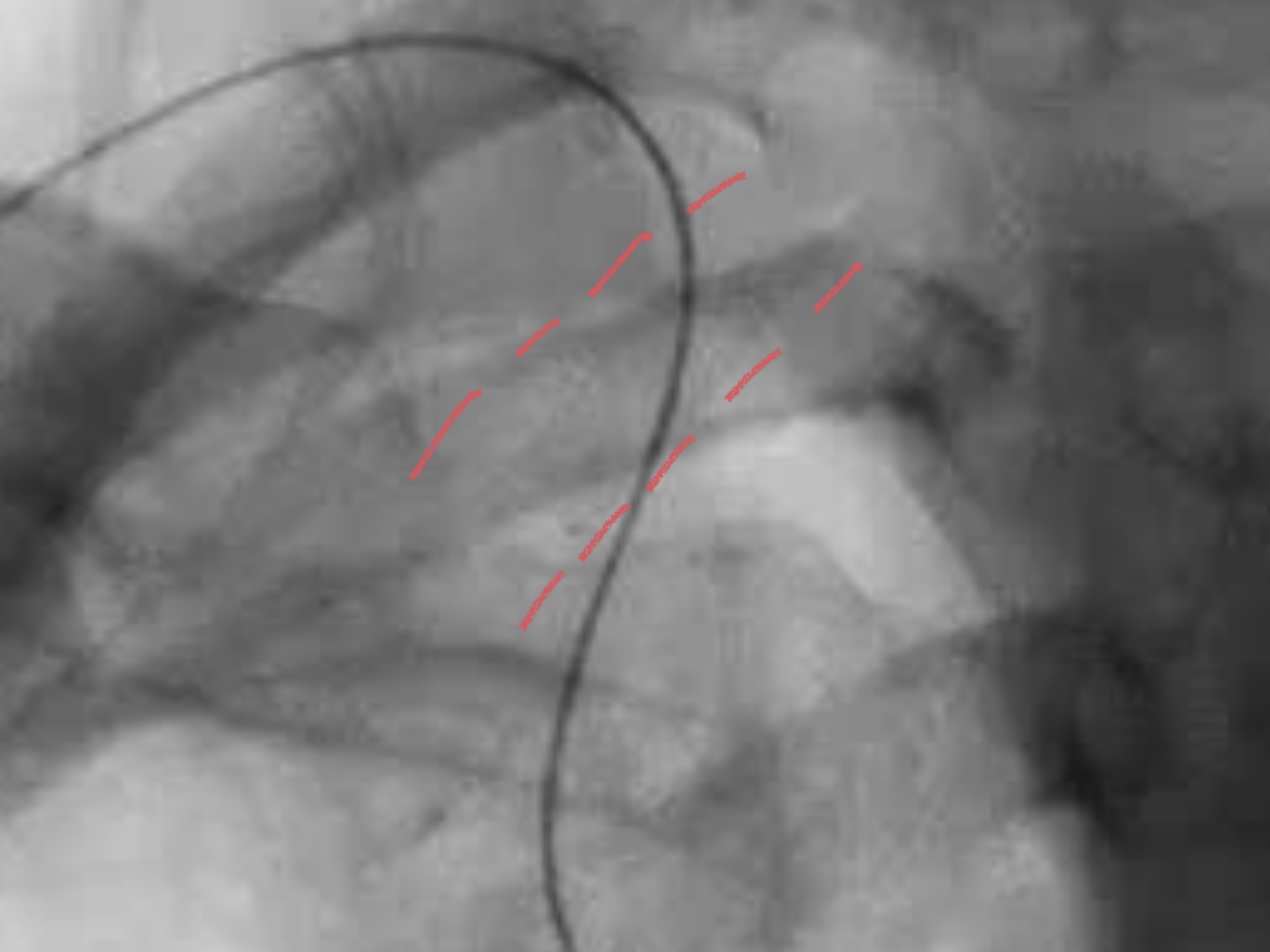
Angiogram showed intact radial artery

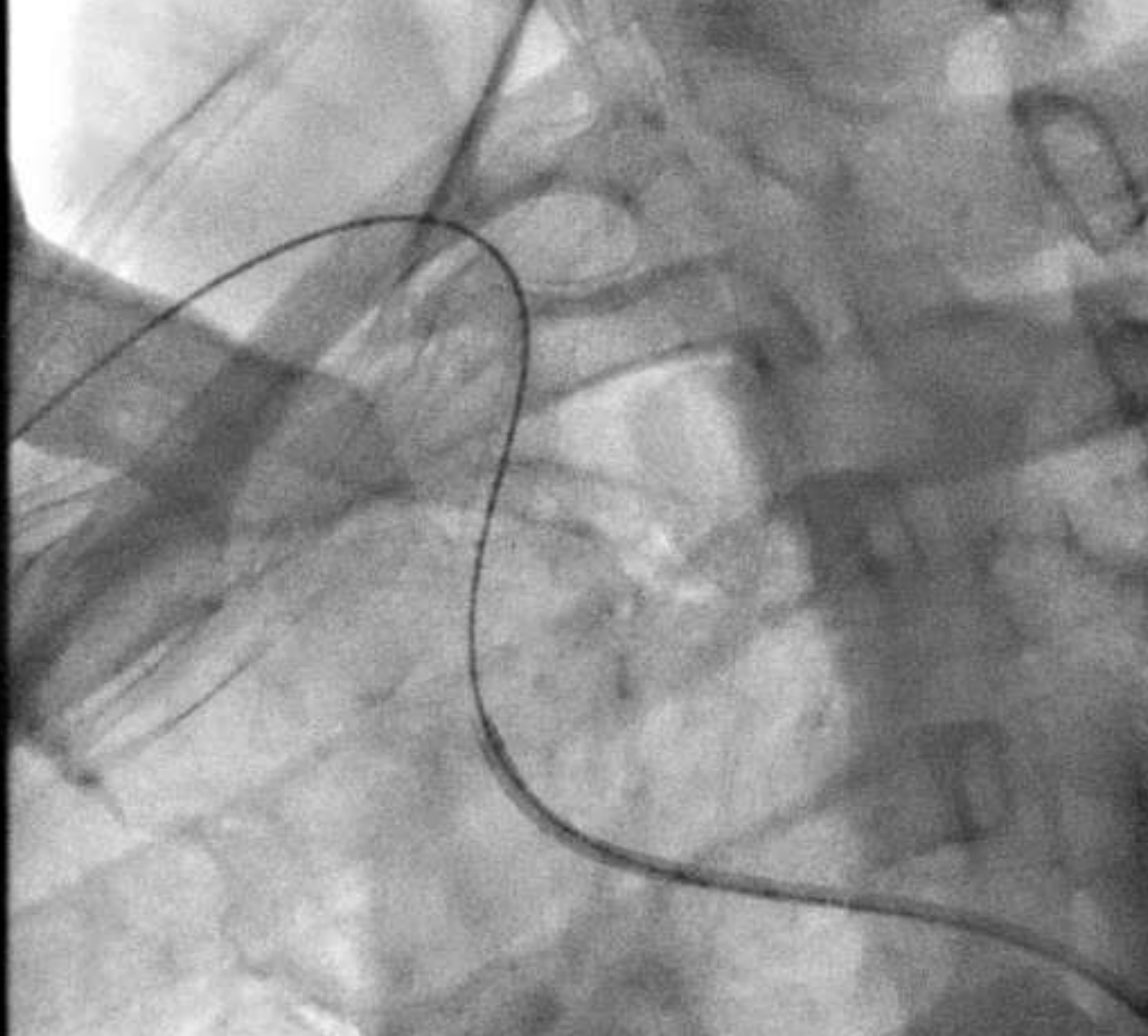
Disaster #2

- Where was the stent?





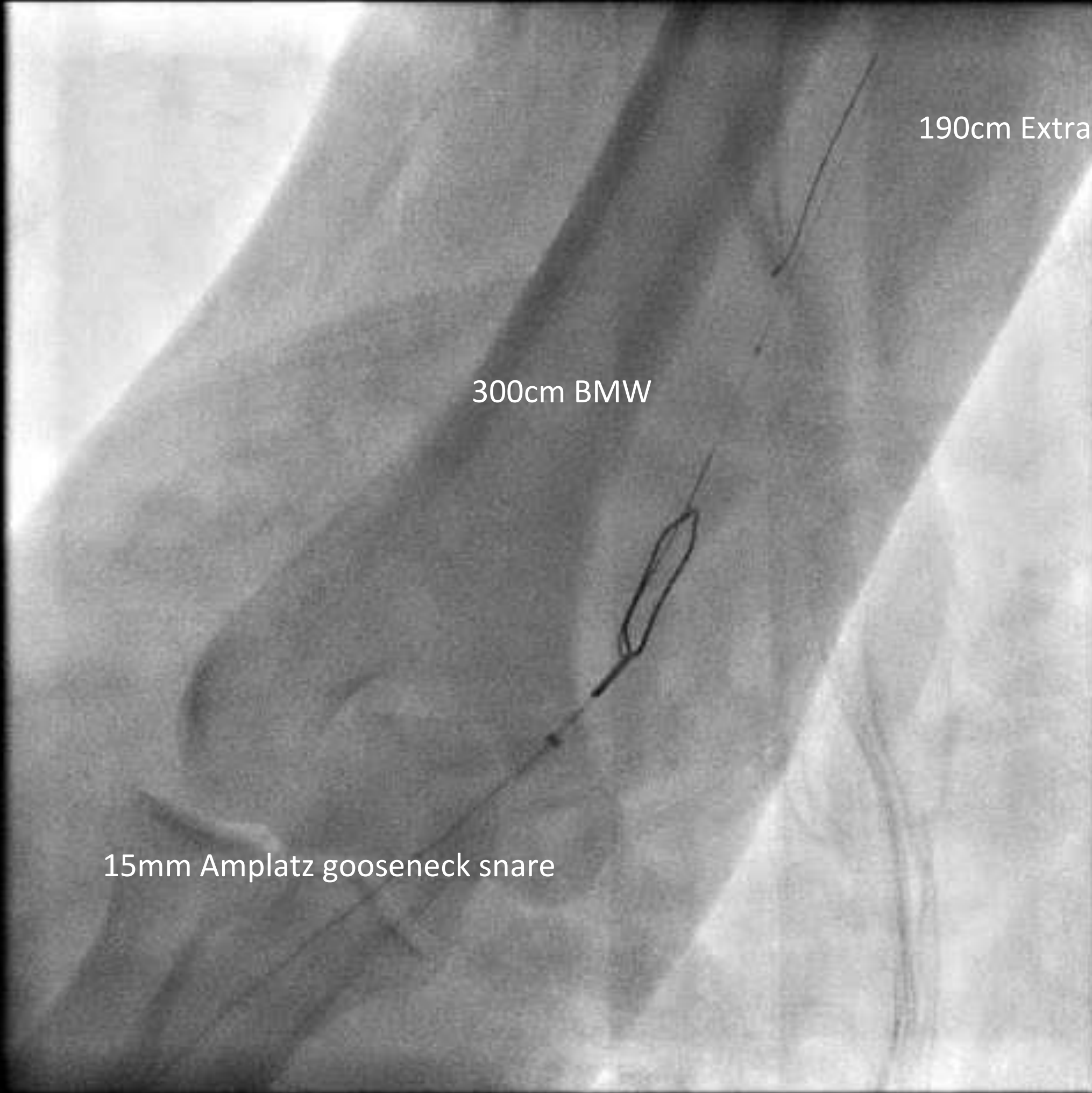


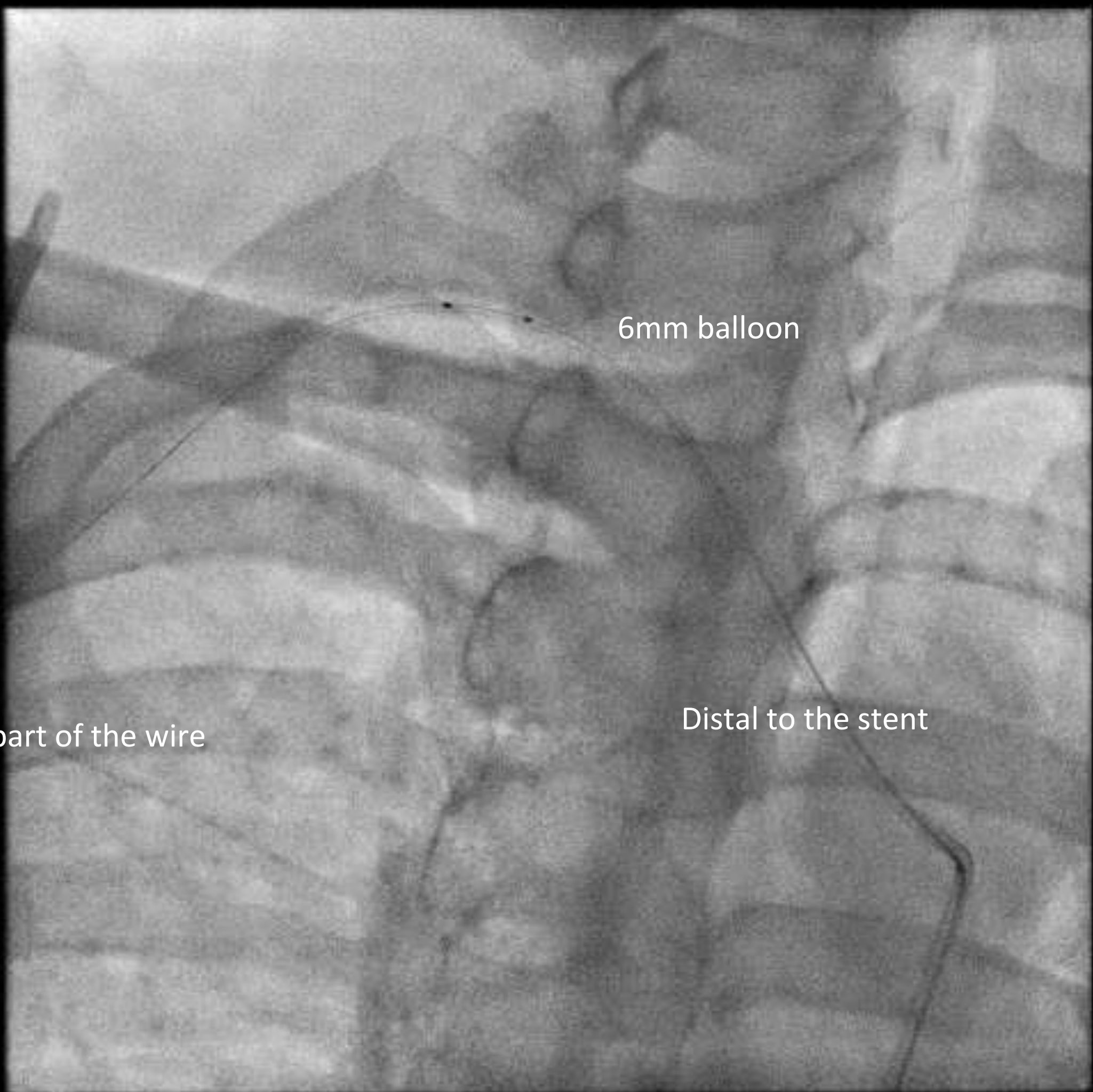


190cm Extrasport

300cm BMW

15mm Amplatz gooseneck snare





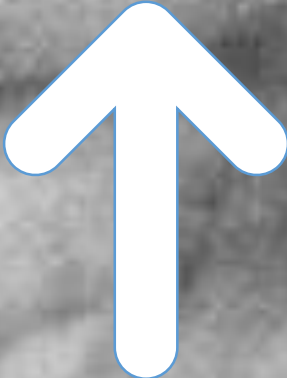
6mm balloon

Distal to the stent

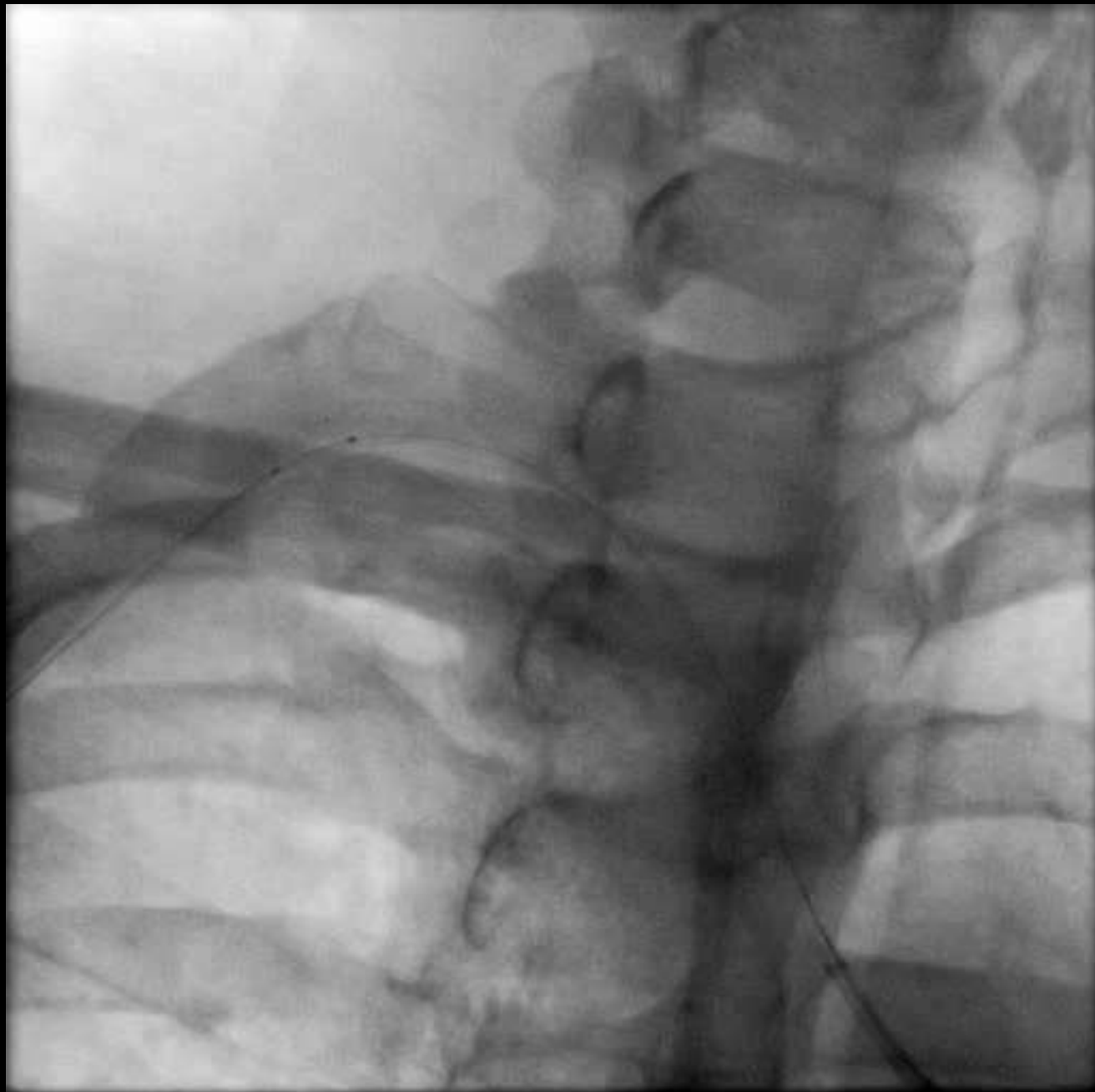
Floppy part of the wire
was cut

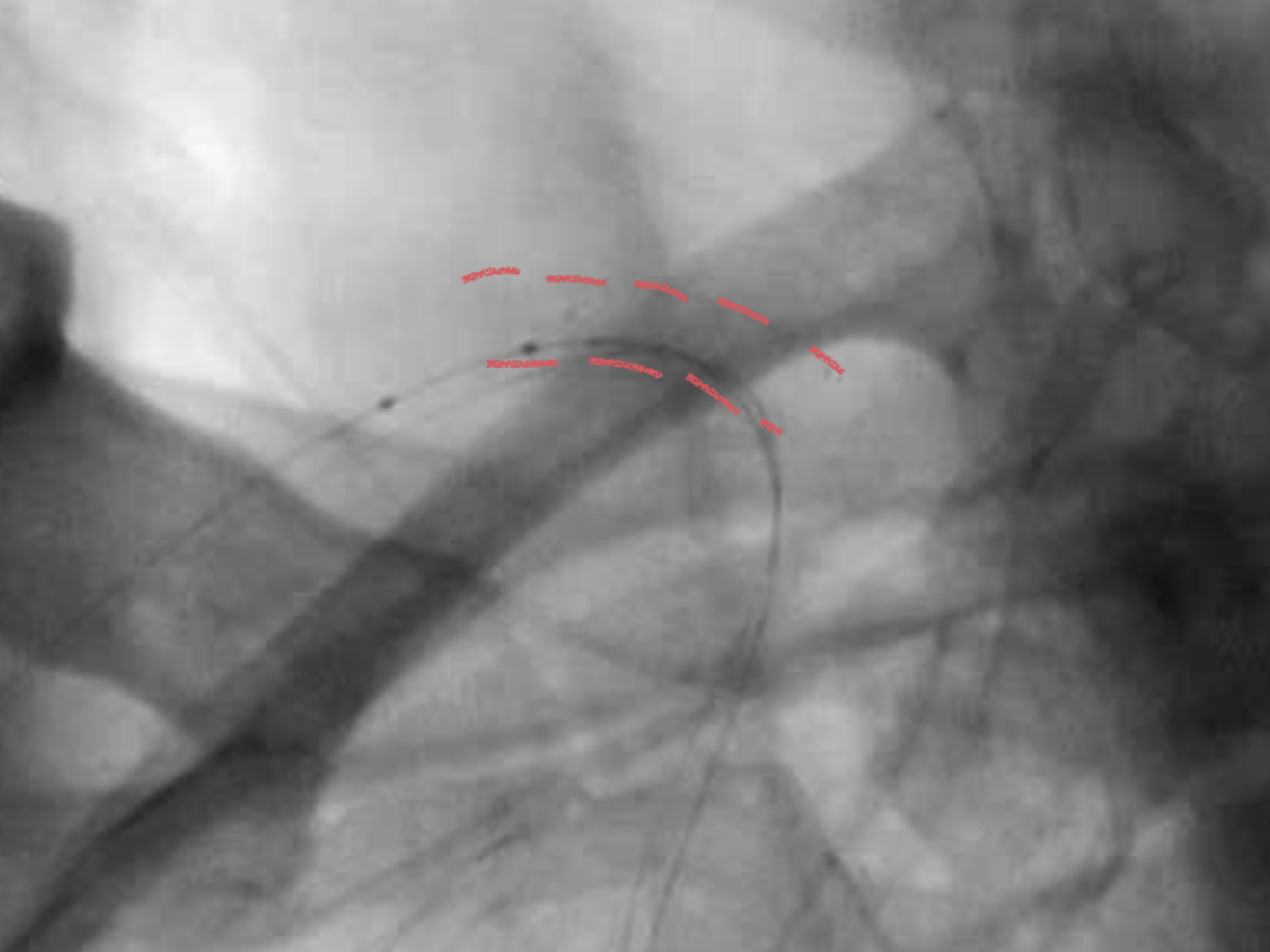
Stepwise withdrawal force applied to position the stent away from the bifurcation

Inflated to 14atm



Final stent position





Immediate outcome

- Right upper limb distal circulation intact
- Consulted vascular surgeon with Doppler USG done
- Right subclavian, axillary, brachial, radial and ulnar arteries with no significant stenosis

Patient outcome

- hsTnI downtrend since PCI

Collect Date :	02/12/17	03/12/17	08/12/17	18/12/17
Collect Time :	20:35	06:09	14:20	19:51
Arrive Date :	02/12/17	03/12/17	08/12/17	18/12/17
Arrive Time :	20:53	06:22	14:34	20:50
Request No. :	C9710680	C9710739	C9712270	C9714970
Urgency :	URGENT	URGENT	URGENT	URGENT
<hr/>				
Plasma hsTnI	56100 H	74262 H	4127 H	120 H

- Cardiac rehab



CT angiogram after 3 months



Undeatable balloon

- Excessive twisting /kinking /stretching
- The damaged part became a one way valve
- Sign: difficult to inflate the balloon
- Complications:
 - Ischaemia
 - Dissection
 - Stent dislodgement

References:

JACC: Cardiovascular Interventions Dec 2015, 8(14) e245-e246

Interventional Medicine & Applied Science. 2013;5(1):43-45

Practical Handbook of Advanced Interventional Cardiology: Tips and Tricks

Undeatable balloon

- Solutions
 - Try to deflate with 50cc syringe
 - Inflate to rupture it
 - Puncture with back end of guidewire supported by OTW balloon
 - Puncture by a mother-in-child catheter
 - Open

References:

JACC: Cardiovascular Interventions Dec 2015, 8(14) e245-e246

Interventional Medicine & Applied Science. 2013;5(1):43-45

Practical Handbook of Advanced Interventional Cardiology: Tips and Tricks

Dislodged stent

- Incidence of stent loss: 1.3%
 - Decreasing over time due to improved stent design and delivery system
- Causes:
 - Tortuosity / calcification (36%)
 - Failed stent retraction into guiding (28%)
 - Failure to cross the lesion (10%)
 - Crossing old stent (1%)

References:

Stent loss and retrieval during percutaneous coronary intervention: a systematic review and meta-analysis. J Invasive Cardiology 2013;25(12):637-641

Dislodged stent

- Solutions:
 - Snare
 - Small balloon technique
 - Biopsy forceps
 - 2 wires technique
 - Crush stent
 - Stent deployment at other sites

References:

Stent loss and retrieval during percutaneous coronary intervention: a systematic review and meta-analysis. J Invasive Cardiology 2013;25(12):637-641

Summary

- Undeatable balloon & dislodgement of a deployed stent
- Causes
- Management