Calcified coronary artery rupture

Potential conflicts of interest

Speaker's name: J. Marques

- ❑ **I do not have any potential conflict of interest**

Clinical Case

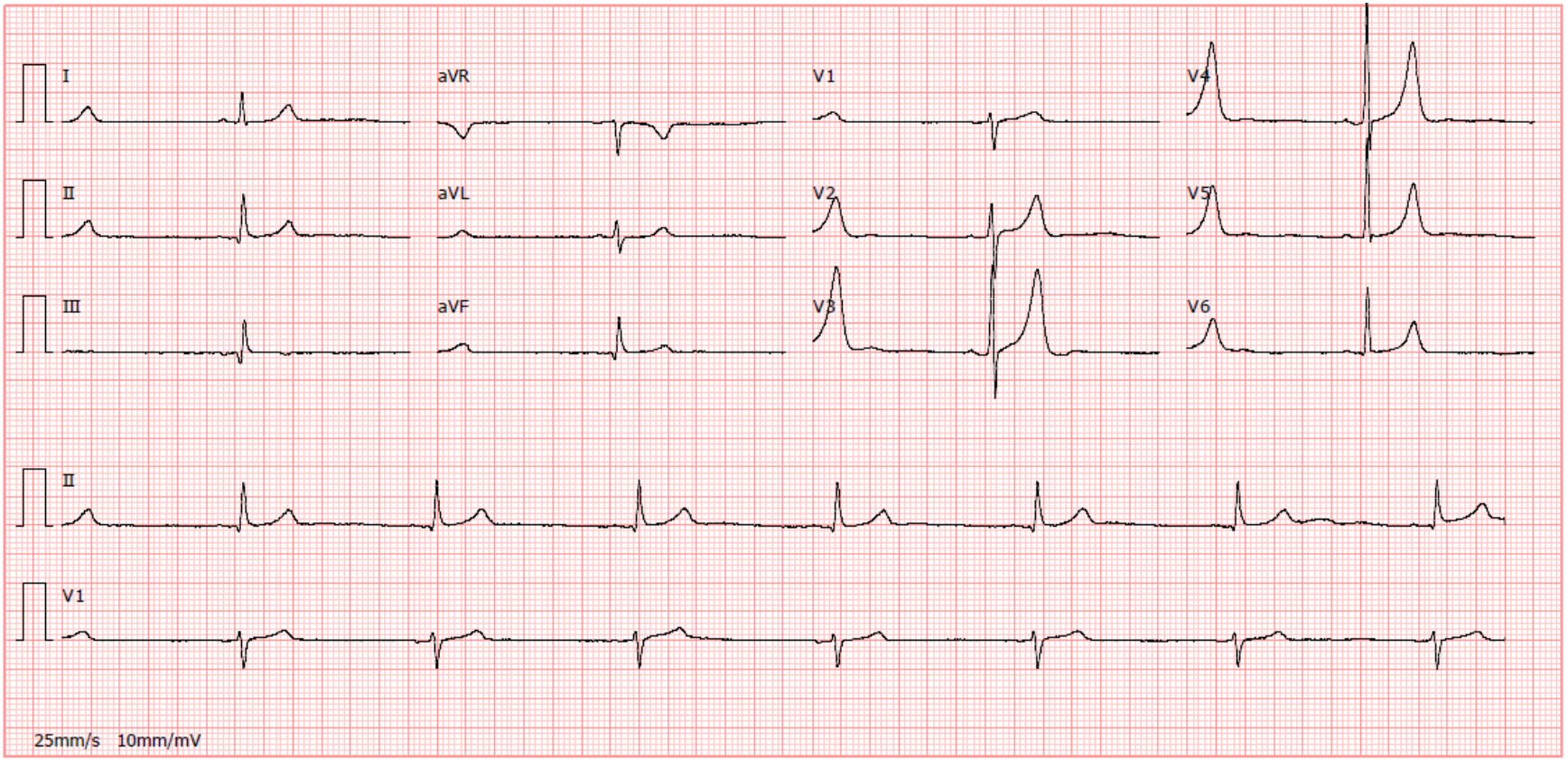
- 70 year old male
- Ex smoker
- History of peptic ulcer and moderate alcoholic intake habits
- Inferior STEMI in 12/2012 with primary PCI over the middle segment of right coronary artery (DES)
- On the angiogram had a severe lesion on the middle left anterior descendent artery in bifurcation with second diagonal.

Clinical Case

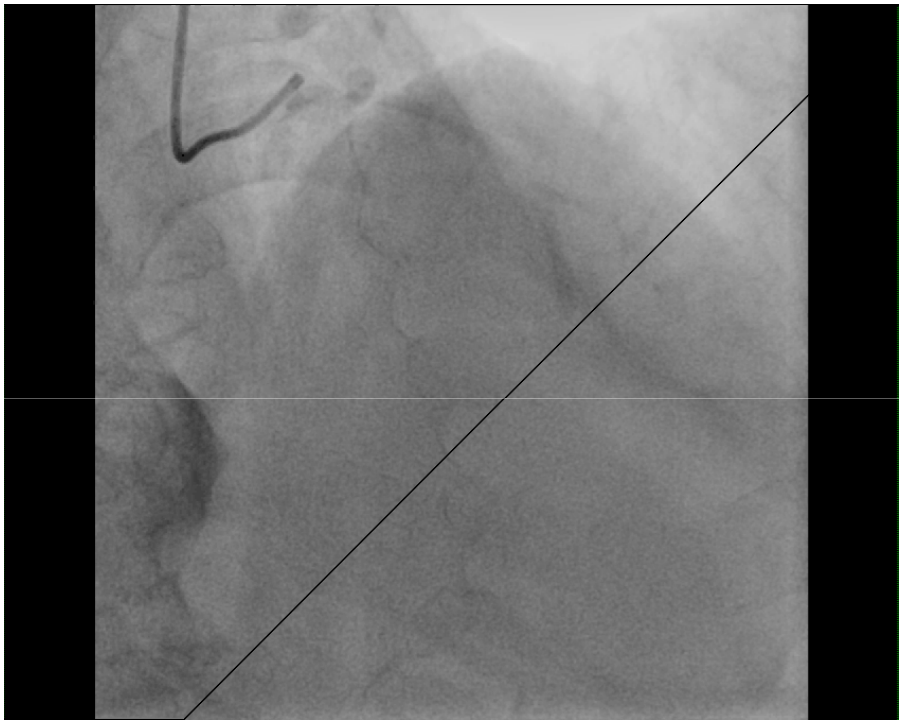
- In May 2013 persisted with angina
- Preserved LV function with inferior akinésia and ejection fraction 50%. Without valvular heart disease
- Medication:
  - ASA 100mg id, clopidogrel 75mg id,
  - furosemide 40mg id, perindopril 4mg id, bisoprolol 5mg id, atorvastatin 20mg id pantoprazole 20mg id.

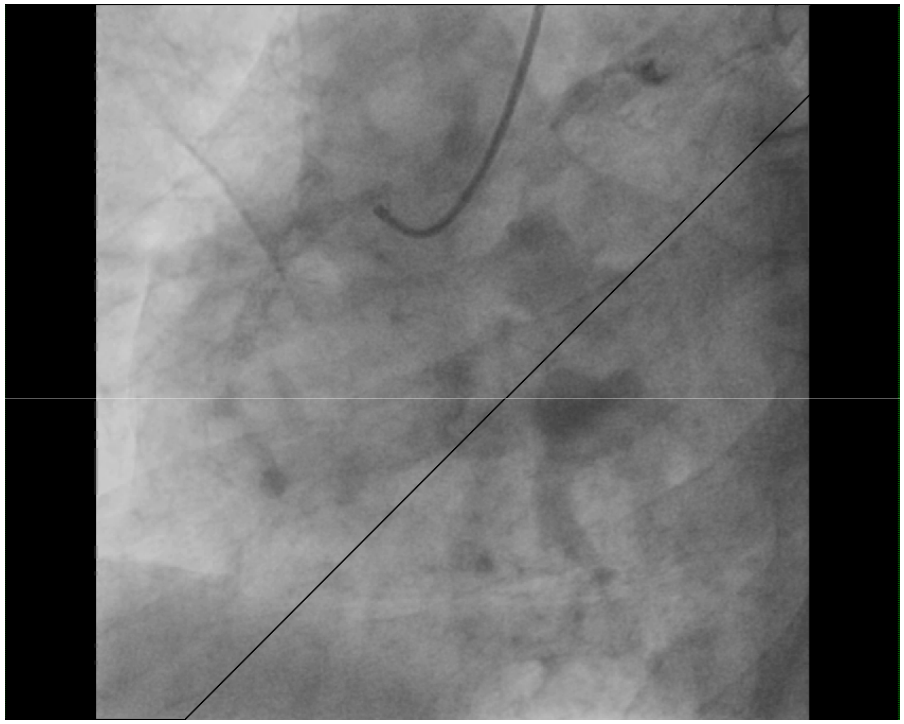
euro PCR 2014

Basal EKG



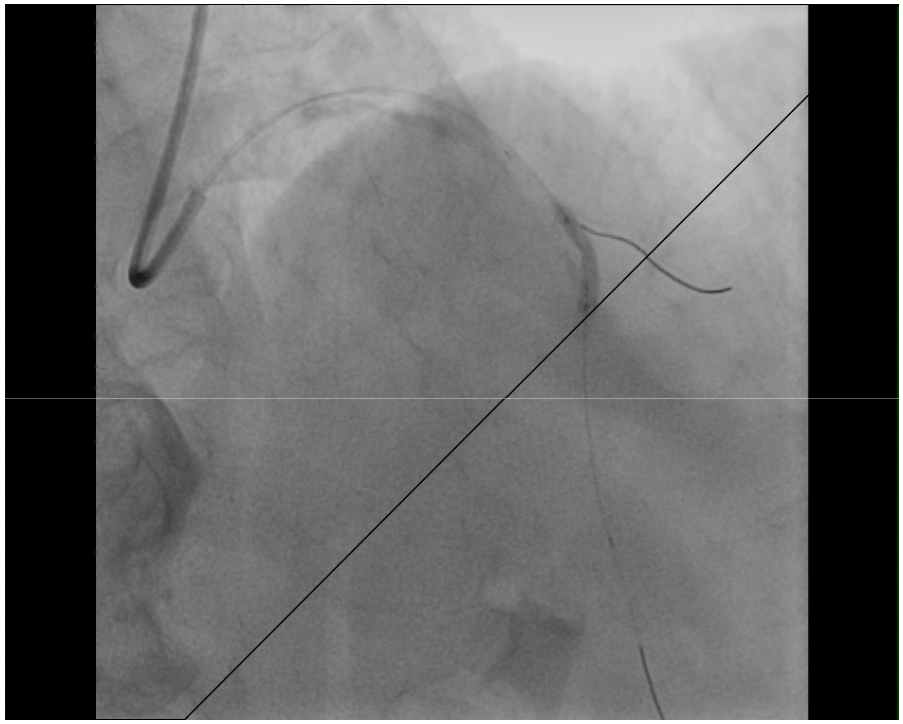
Coronary angiography





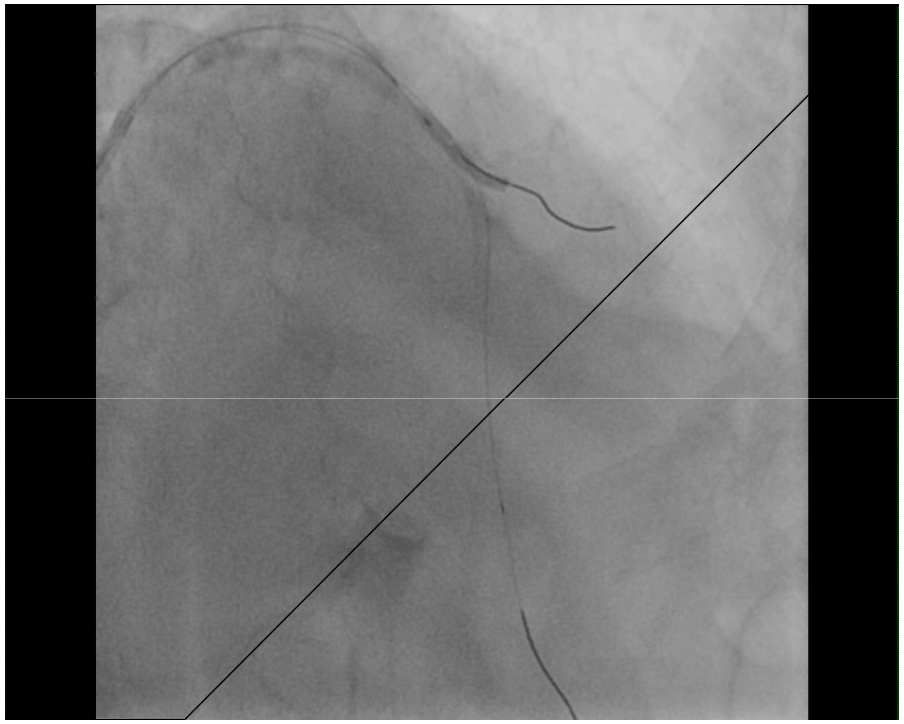
- Severe calcified lesion on middle left anterior descendent artery, bifurcation with second diagonal.
- Moderate lesion on ostial right coronary artery and on the left main.

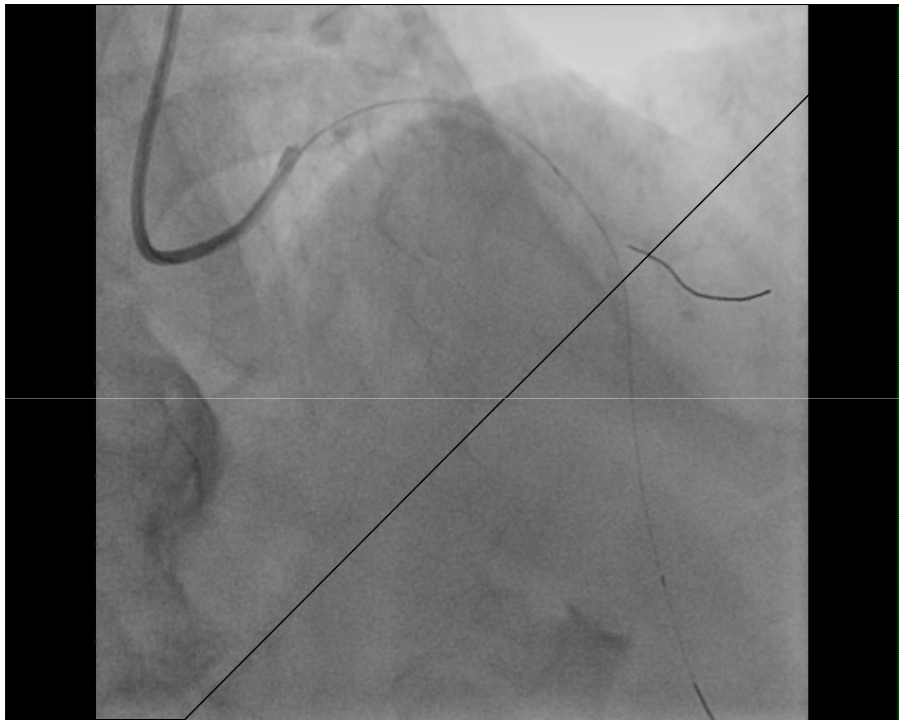
Elective PCI of LAD



- Radial arterial access with a JL 6F guiding catheter
- Dilatation on the middle left anterior descendent artery with 2.5x15mm regular balloon

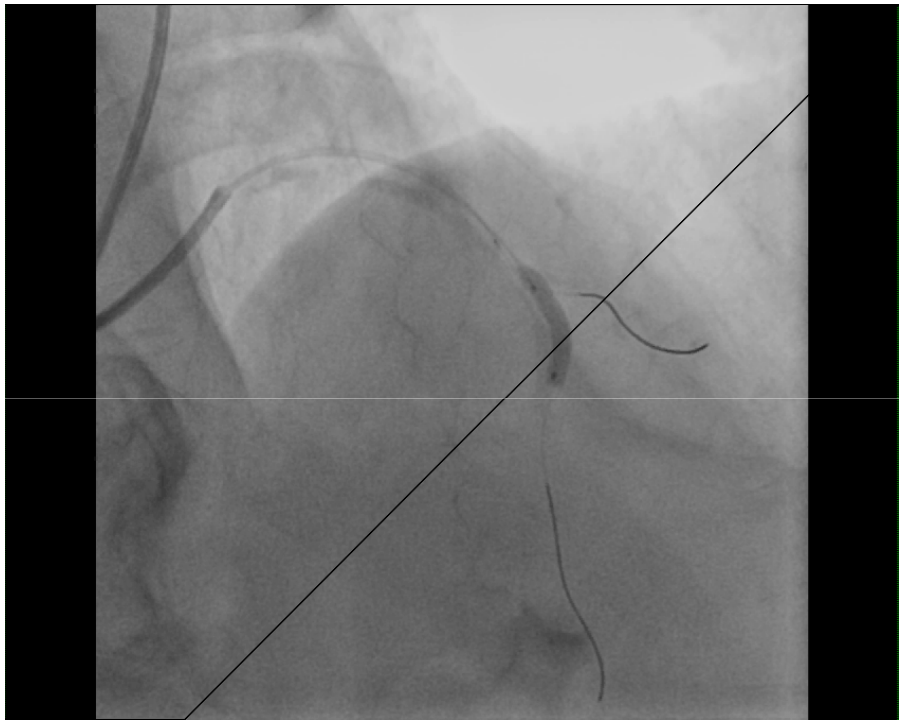
Side branch dilatation

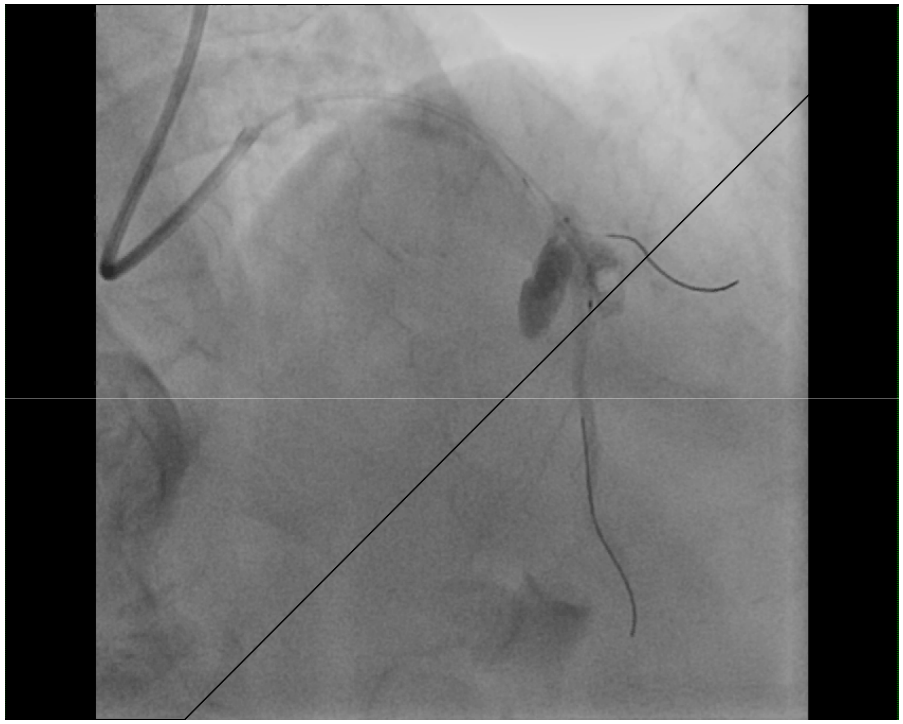




- Dilatation on ostial diagonal with the same 2.5x15mm regular balloon
- Not possible to delivery a 2.75x22mm DES in spite of second dilatation with 2.5x15mm balloon on the left anterior descendent artery
- Observed liner dissection without contrast retention on distal border of the lesion.

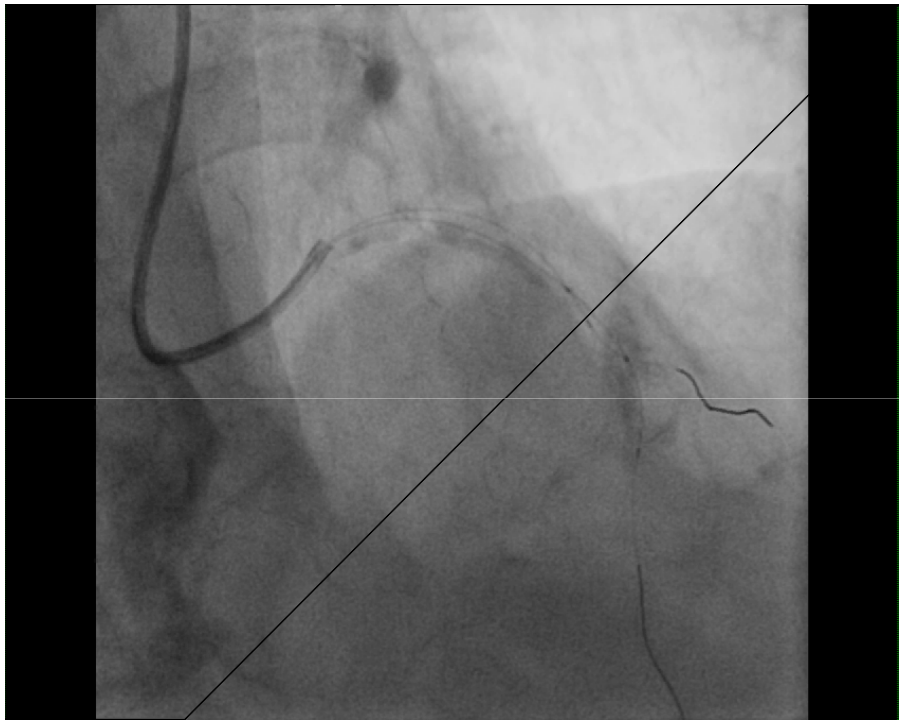
Perforation on mid segment LAD

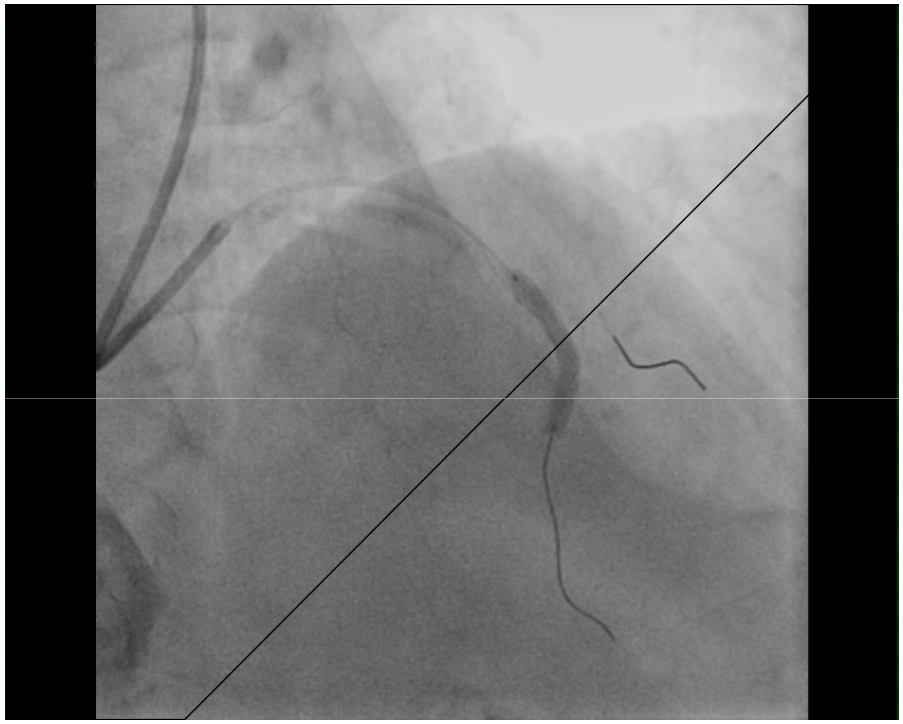




- Dilatation with 2.75x15mm non compliant balloon
- Balloon rupture with immediate retained contrast

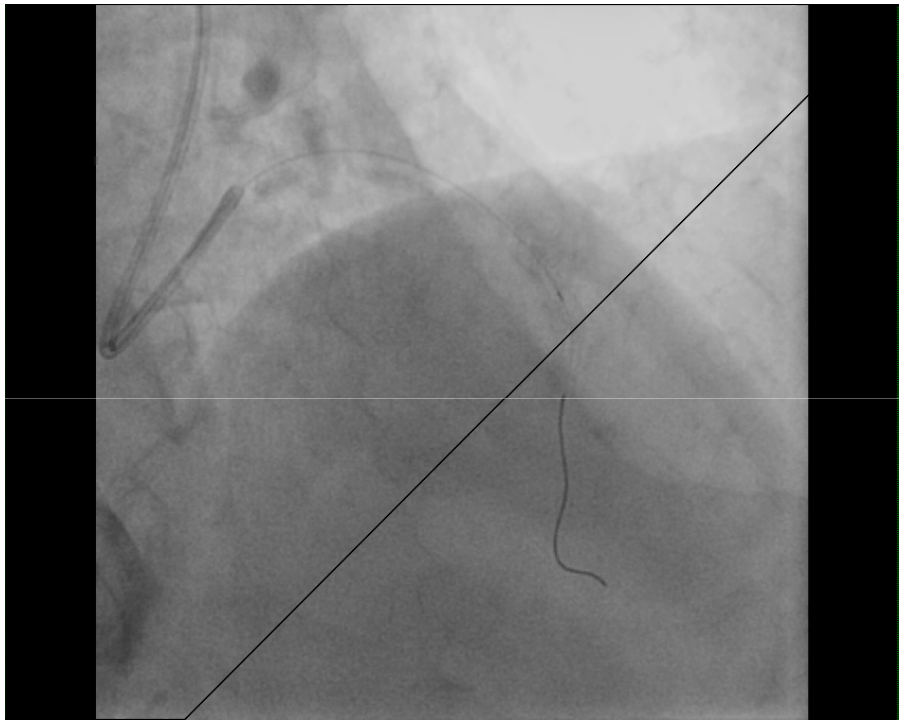
Balloon inflation

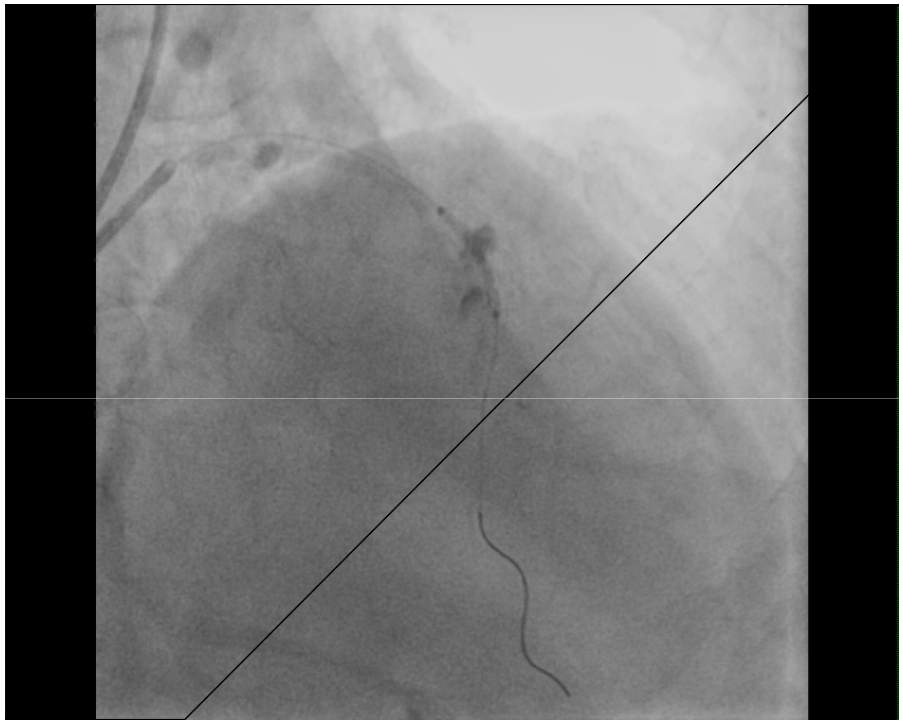




- The 2.75x22mm DES was delivered with continuous balloon inflation
- IV protamine sulfate administrated

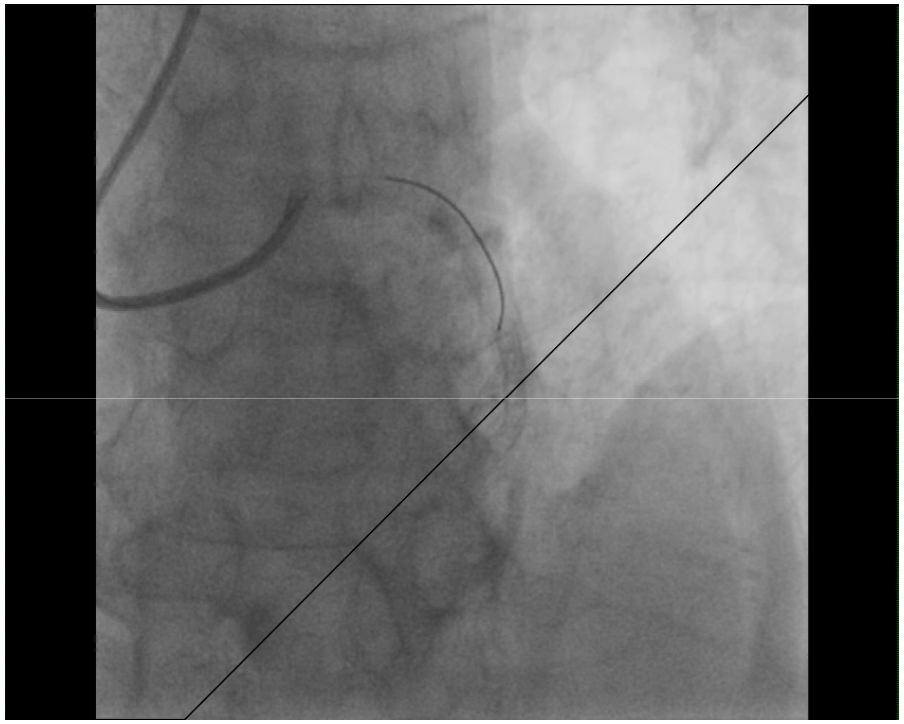
Covered stent graft deployment

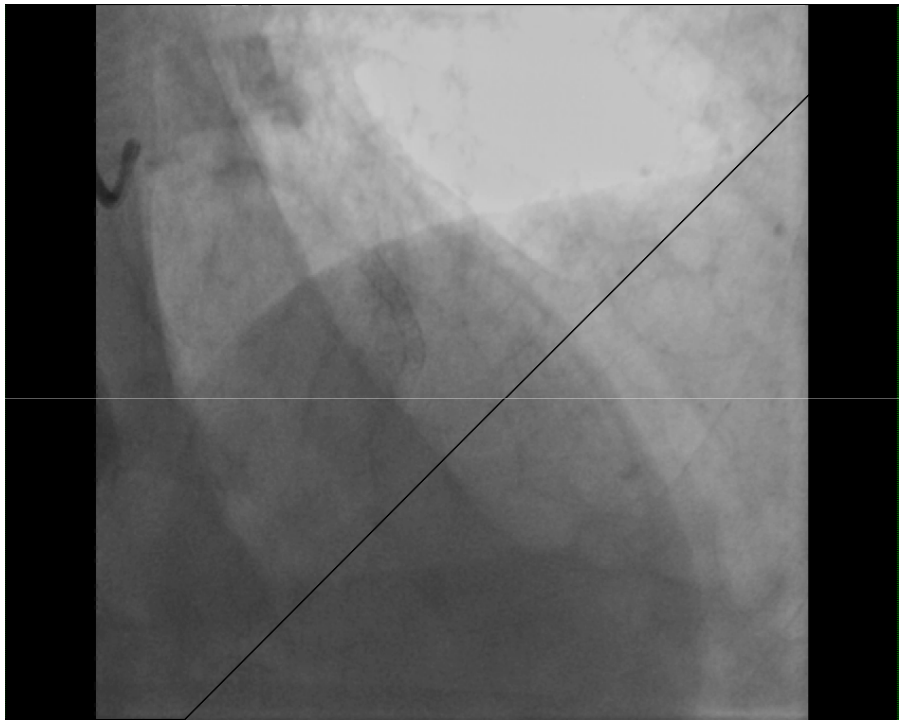




- Few minutes later still active blood loss to pericardium
- Protection wire from the diagonal branch was removed
- Graftmaster 3.0x19mm implanted

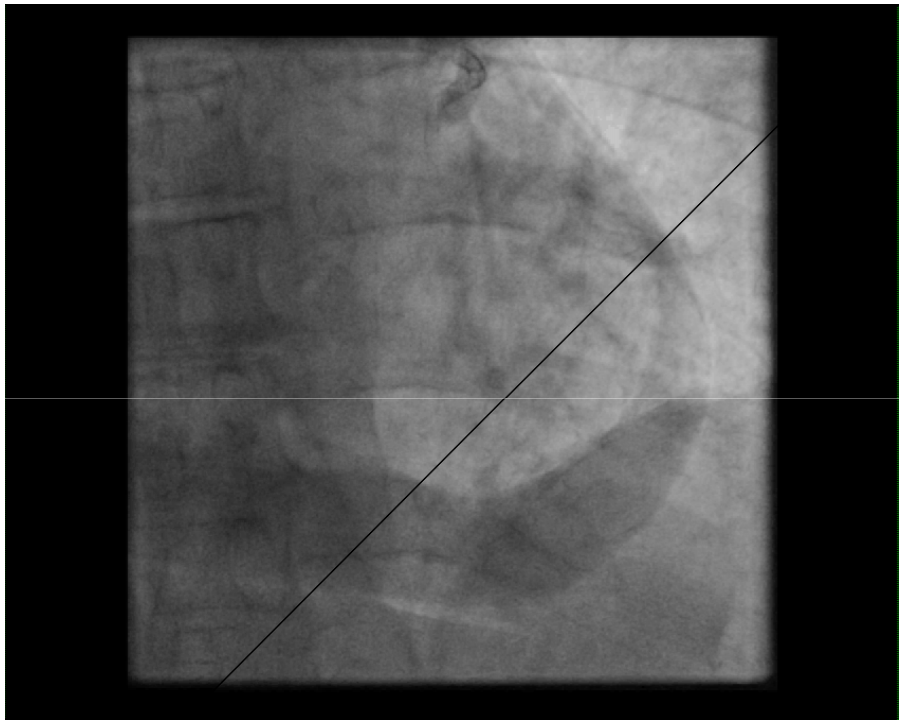
Distal dissection

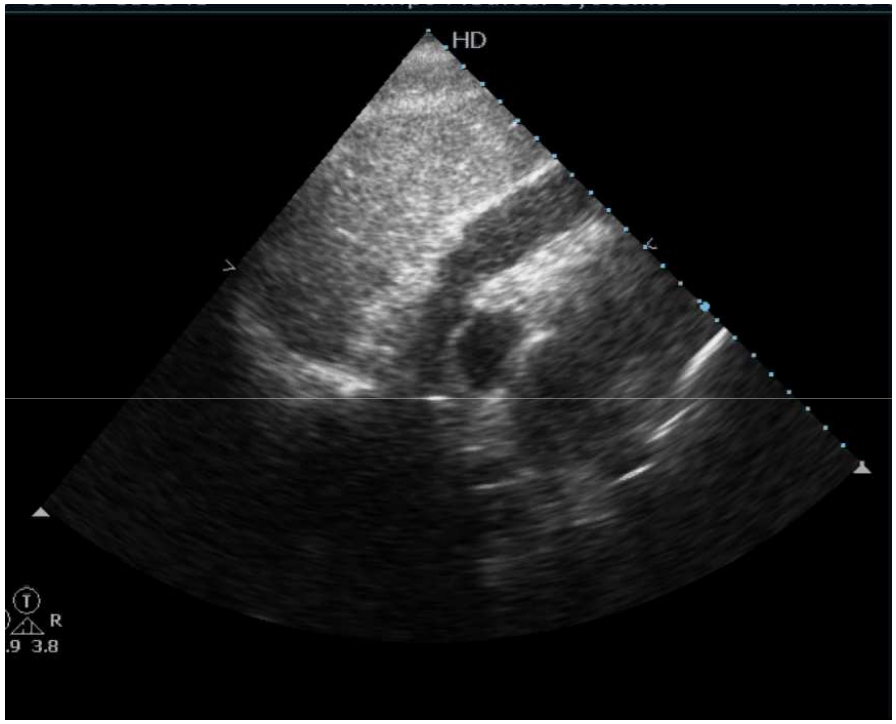




- Residual lesion / light dissection distal to the stent
- Another DES 2.5x14mm was implanted distal to the stent (overlapped)

Pericardial effusion

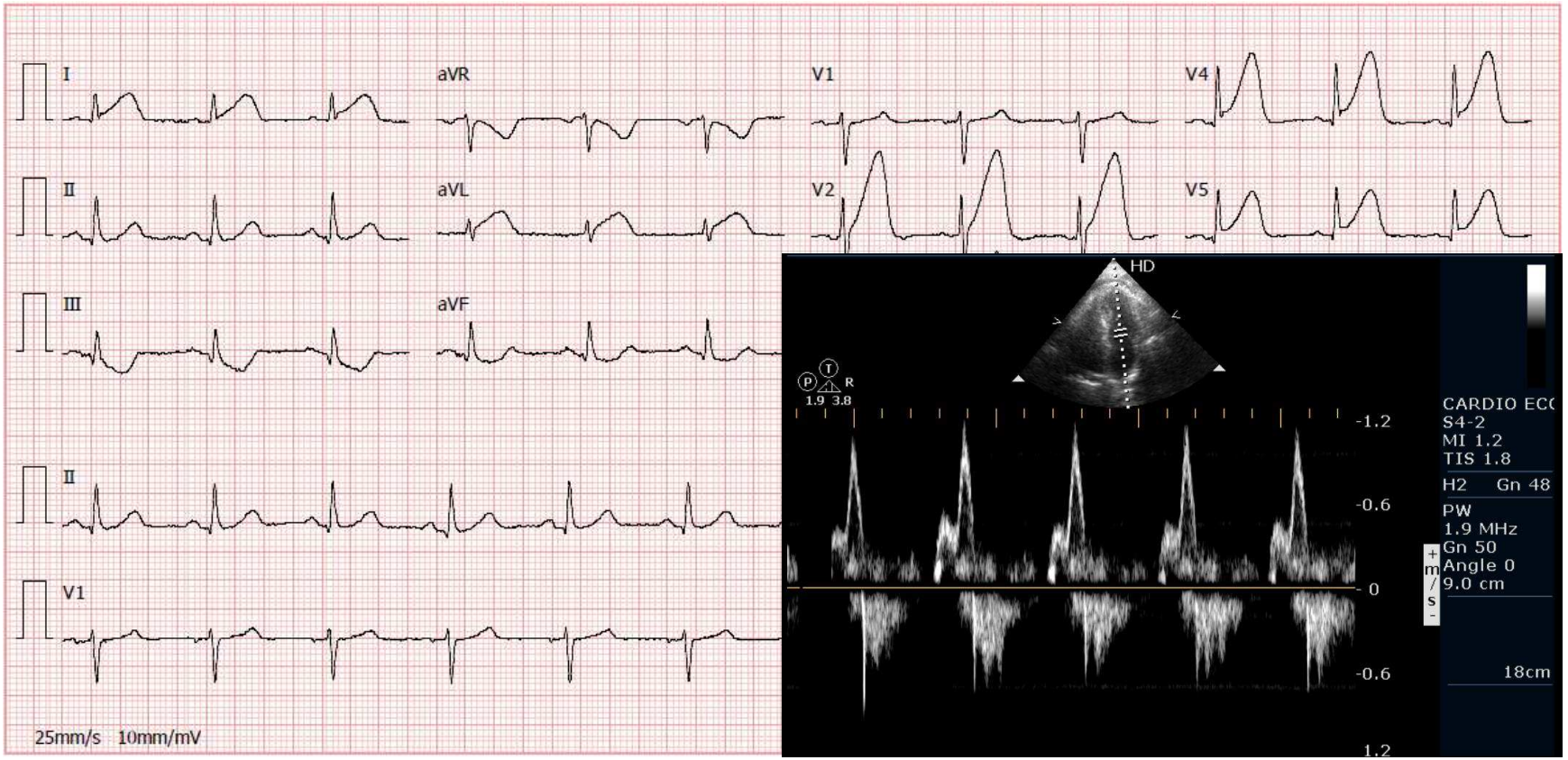




- Moderate pericardial effusion
- Mild LV dysfunction and AMI with TpnI 19.5ng/mL peak.

euro PCR 2014

EKG and mitral flow



Follow-up (April 2014)

- Patient is asymptomatic
- Last echo evaluation on March 2014 had mild LV dysfunction with inferior akinésia and hipokinesia of middle and distal segments of anterior wall
- Stress echocardiogram (March, 2014) with dobutamine negative for isquemia.

Conclusion

- “the reported incidence of coronary artery perforation ranges from 0.1% to 3%”

  Avi Shimony et al; American Journal of Cardiology, 2009

- “the rate of death, myocardial infarction and pericardial tamponade in grade 3 perforation was 19%, 50% and 63% respectively”

  Alexandra et al; American Journal of Cardiology, 2006

- “Implantation of standard stents is successful in treating grade III perforation in a minority of patients (30%)”

  Rasha Al-Lamee et al; JACC interventions Vol. 4, 2011