

High Take Off of Right Coronary Artery with Dynamic Compression by Large Artery

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Patient profile

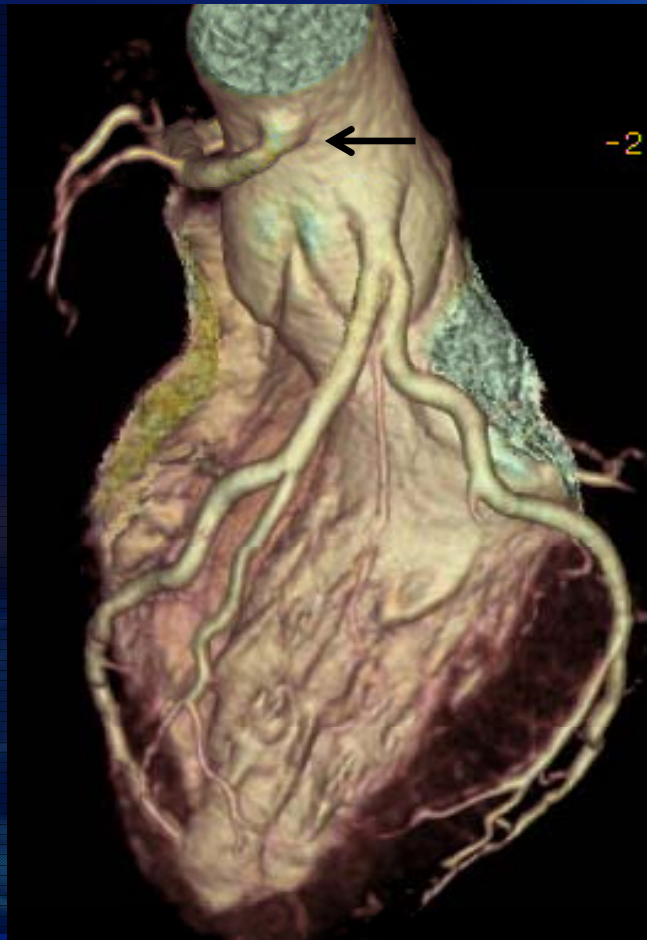
Consult from pediatrician

- 18-year-old male
- Recurrent syncope after chest pain(#5)
- PHx – Osteogenesis imperfecta type I

- **Electrocardiography : Normal**
- **cardiac markers**
 - CK-MB : 2.1 ng/ml
 - cTn-I : 0.1 ng/ml
- **Echocardiography**
 - no regional wall motion abnormality
 - LVEF : 68%
- **Holter ECG: NSR**

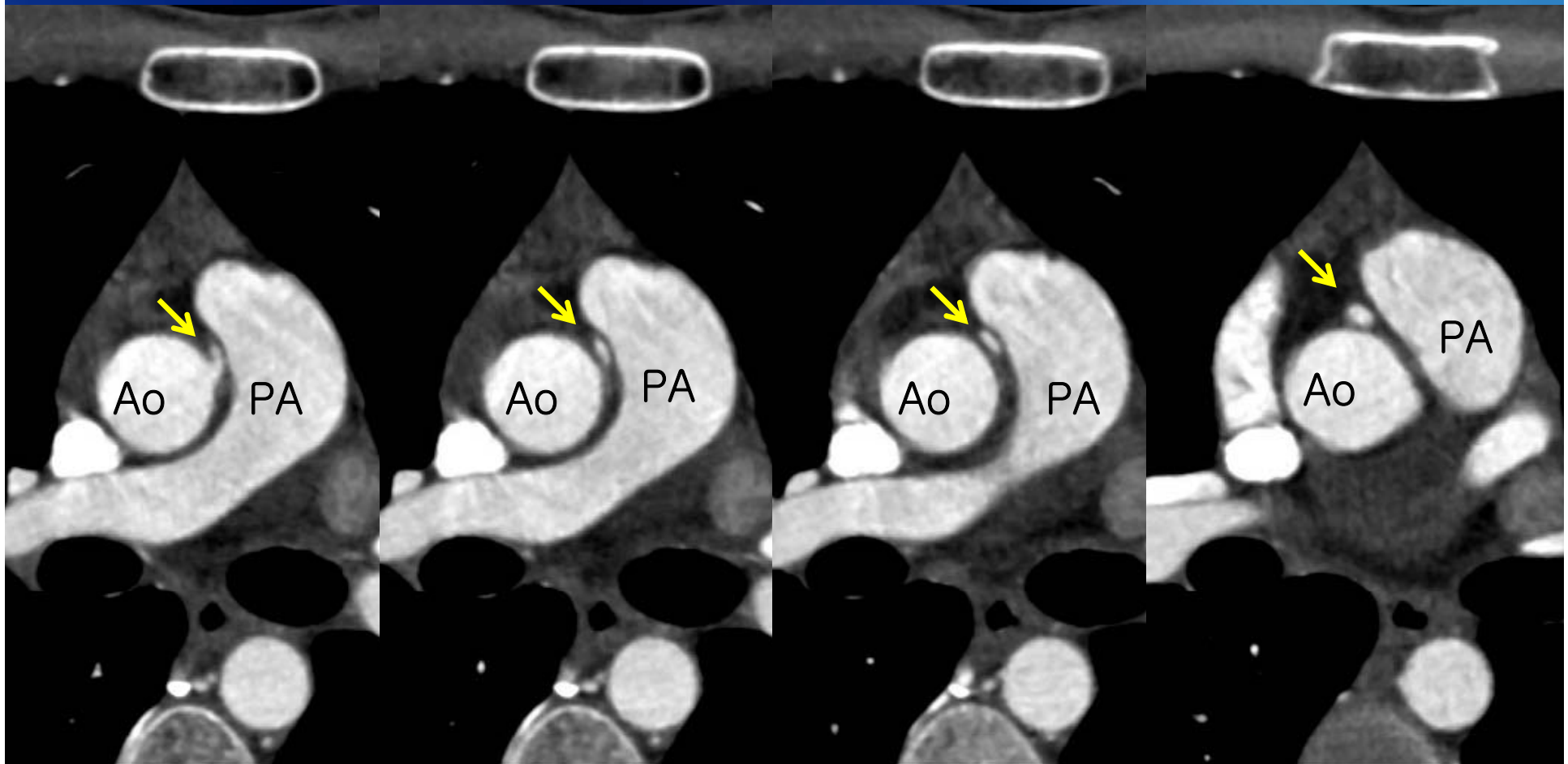
- Neurologic examination: Normal
- Electroencephalography : Normal
- Brain CT: Unremarkable
- Brain MRI: Unremarkable

CT angiography



CT angiography showed high take off RCA

CT angiography

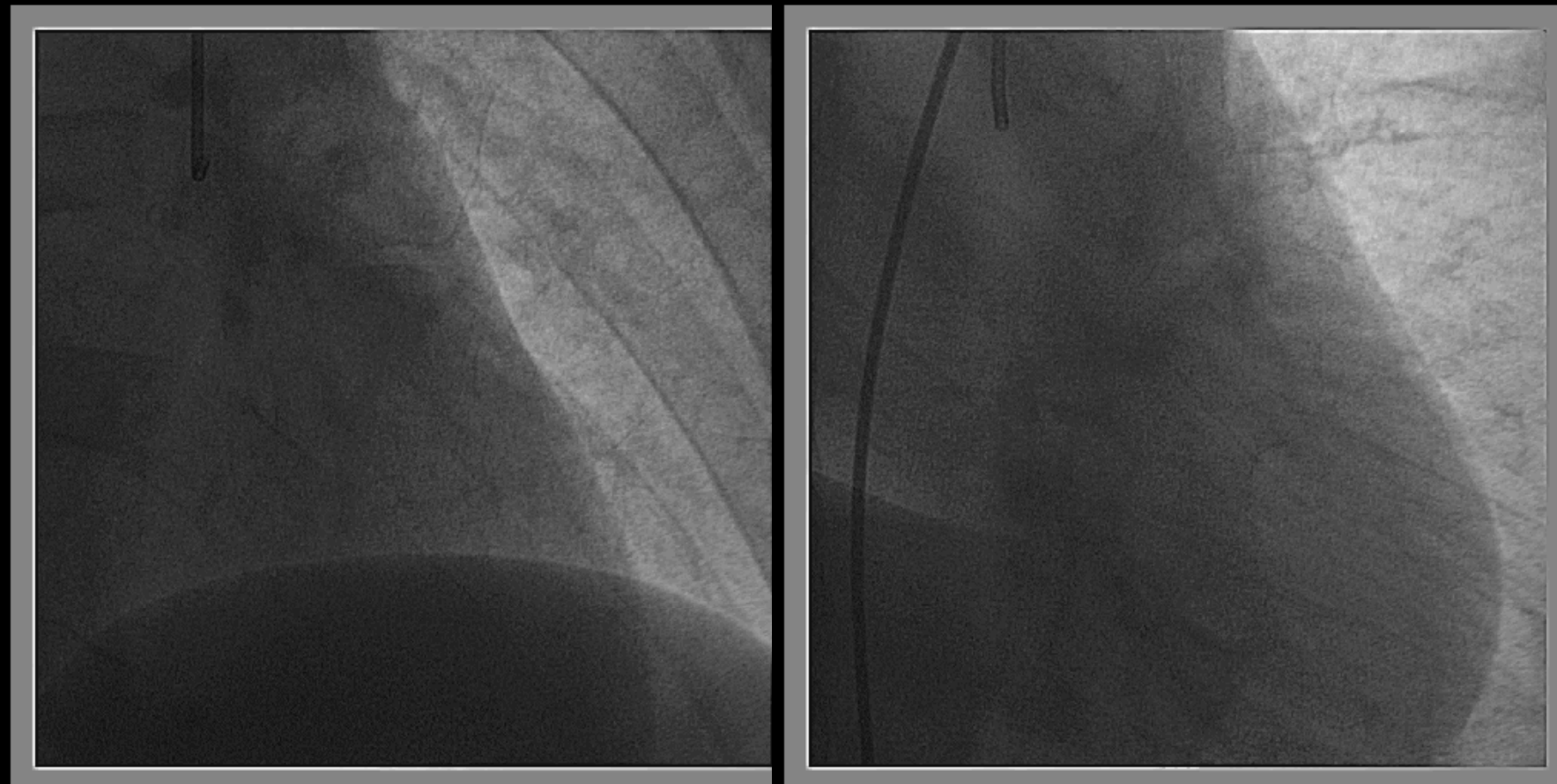


CT angiography showed high take off RCA which is compressed by pulmonary artery and aorta

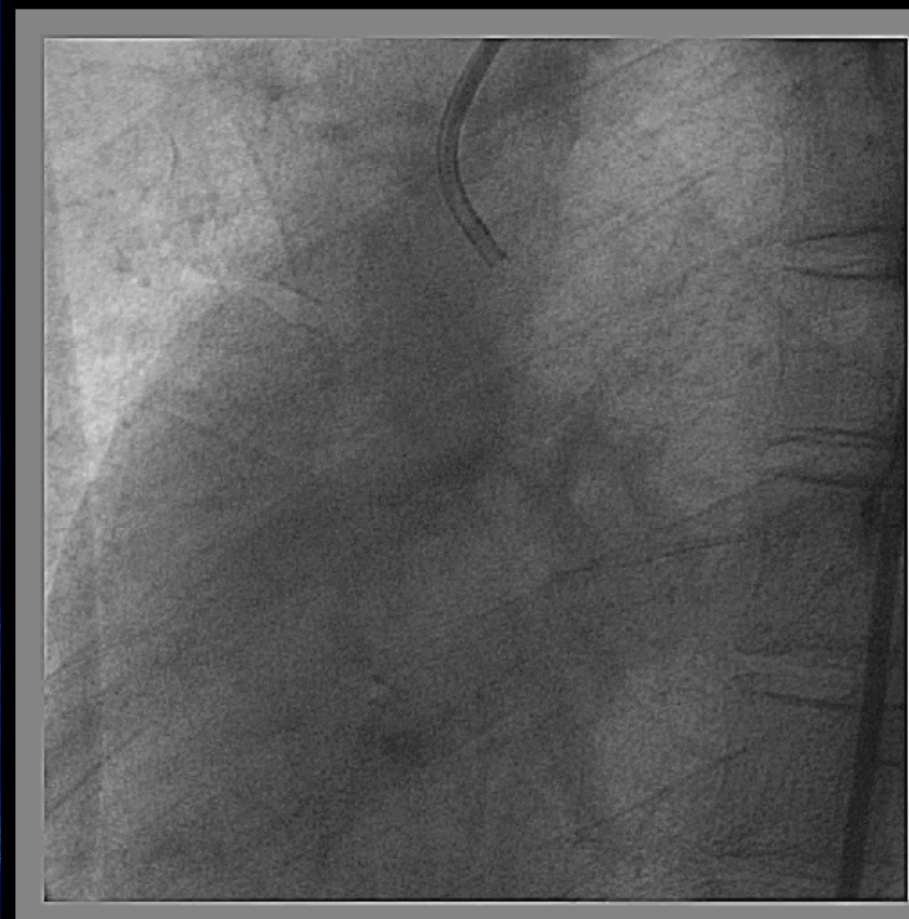
What is next step

- Exercise stress test?
 - History of recurrent fracture
 - Risk of syncope during exercise

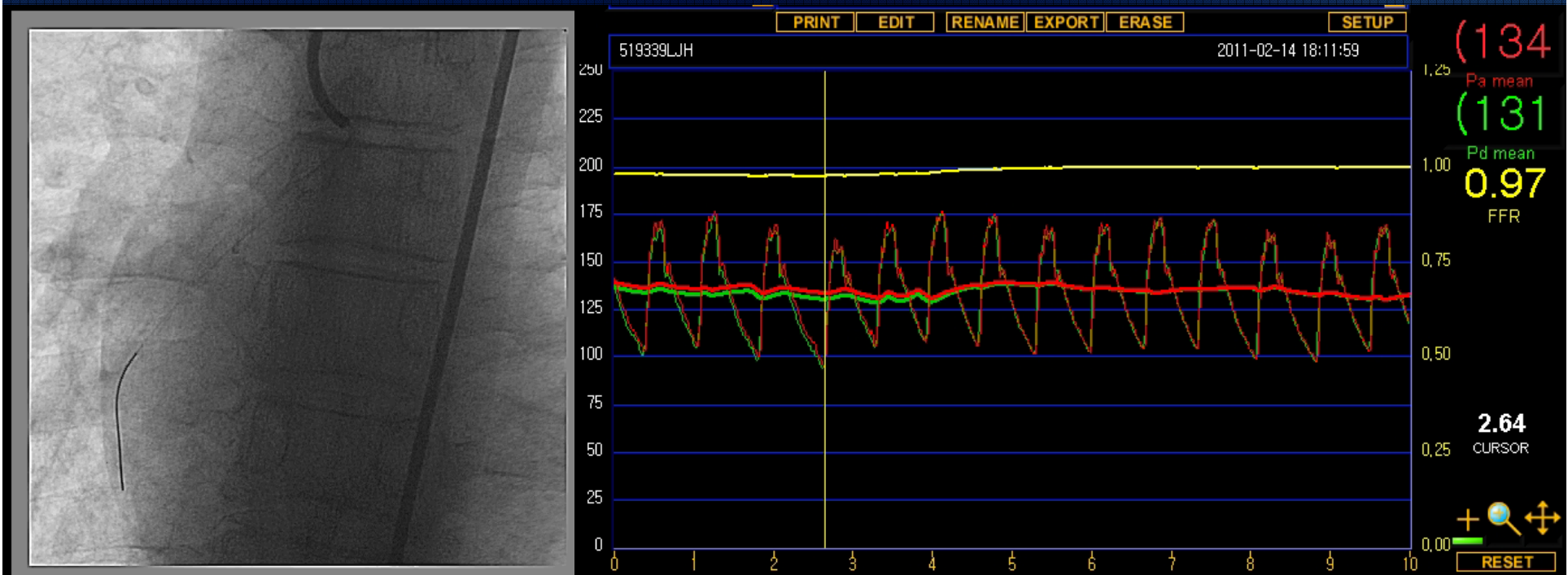
Left coronary angiography



Right coronary angiography

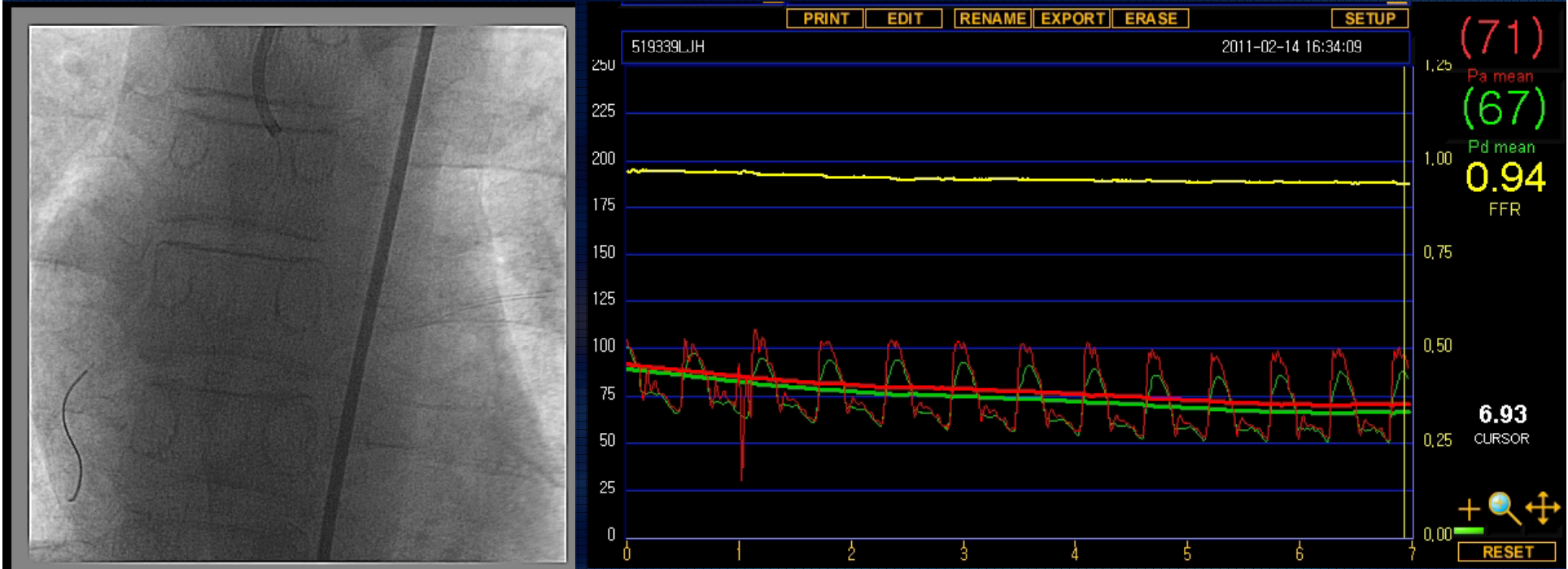


Dobutamine stress FFR



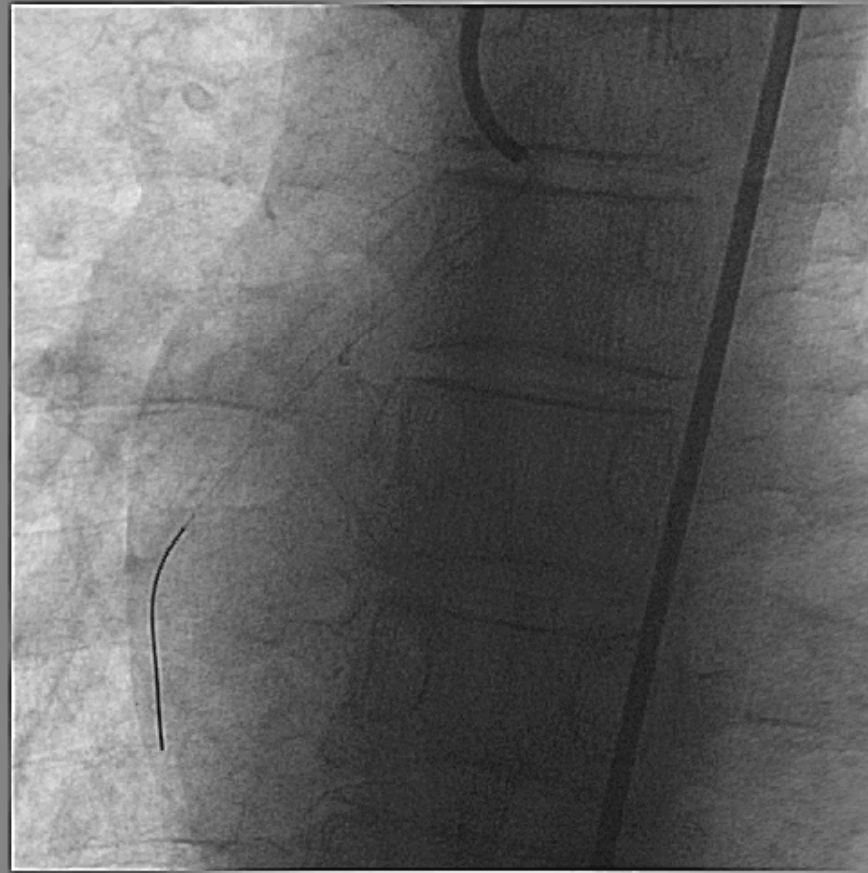
20 μ g/kg/min chest pain tightness and palpitation, BP 175/100

Dobutamine stress FFR

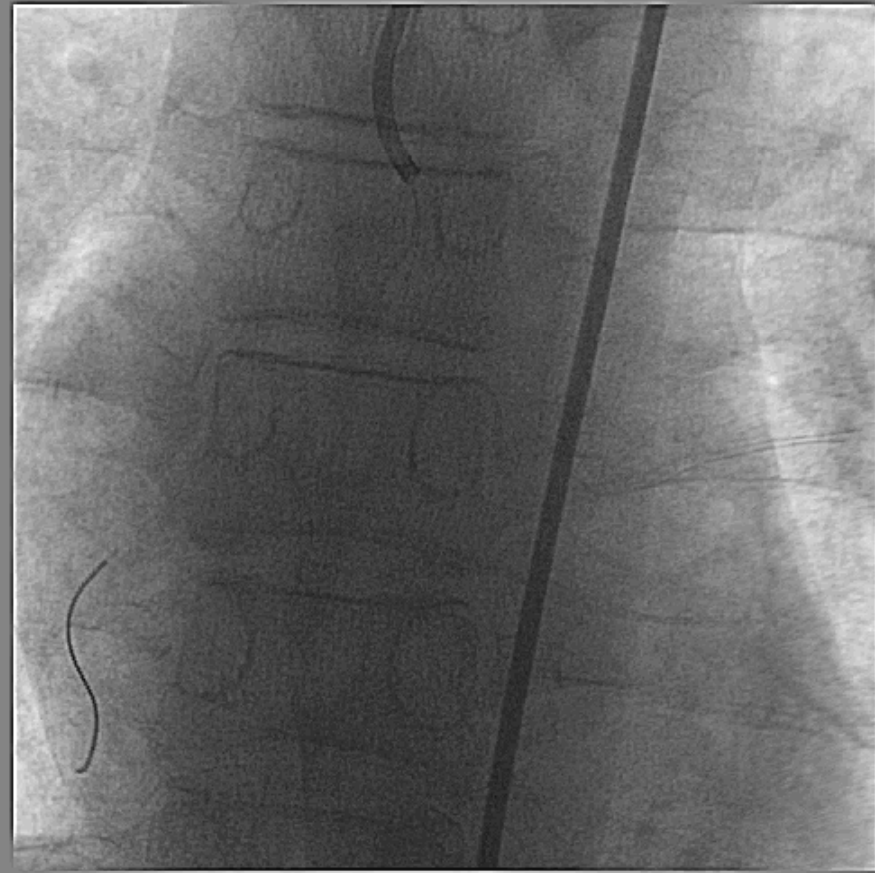


40 μ g/kg/min Severe chest pain, Patient said can not tolerate, BP drop

Dobutamine stress FFR

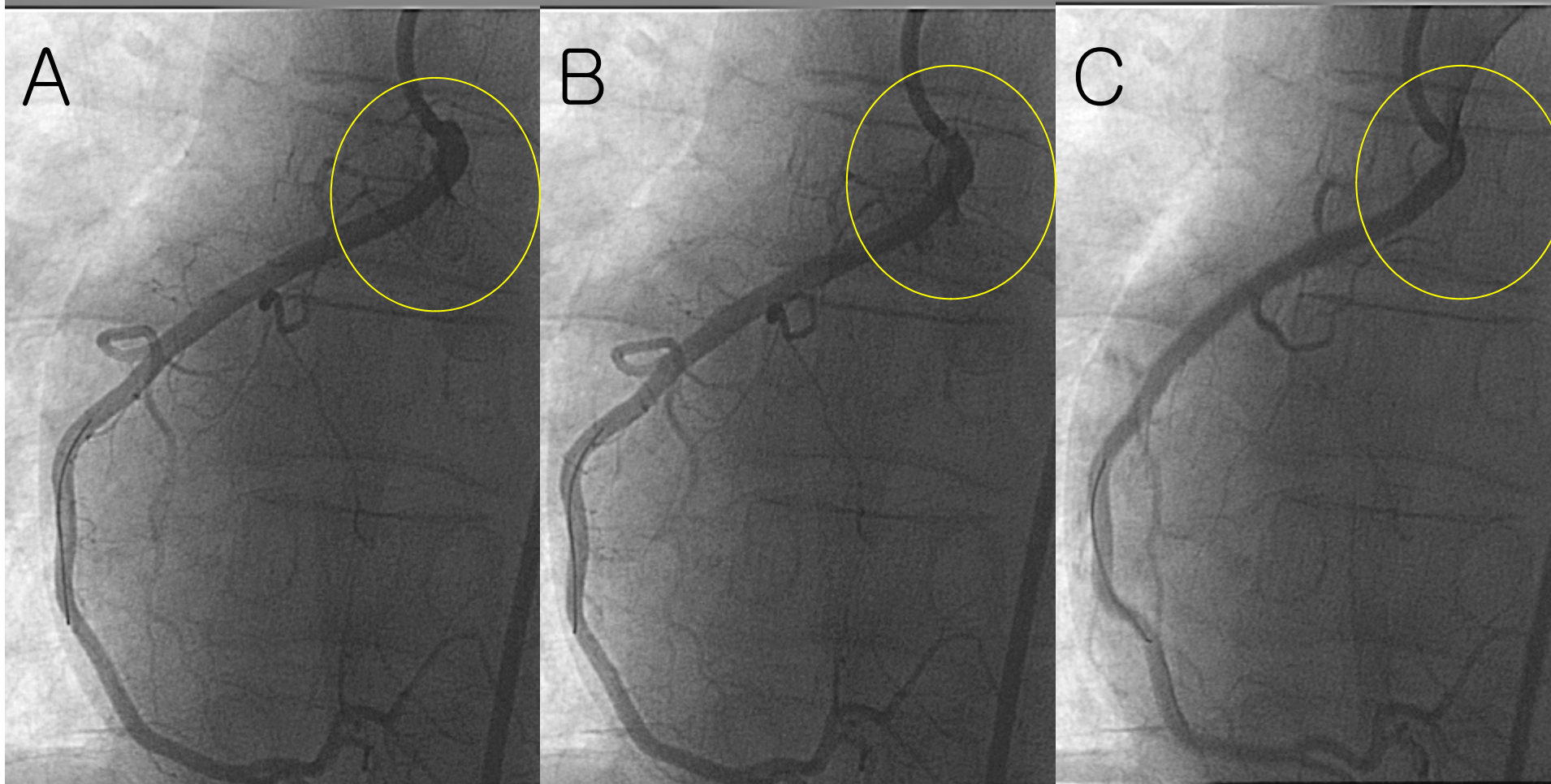


Chest tightness, BP 175/100



Severe chest pain, BP 98/49

Dynamic Compression after Dobutamine Stress



What is your treatment plan?

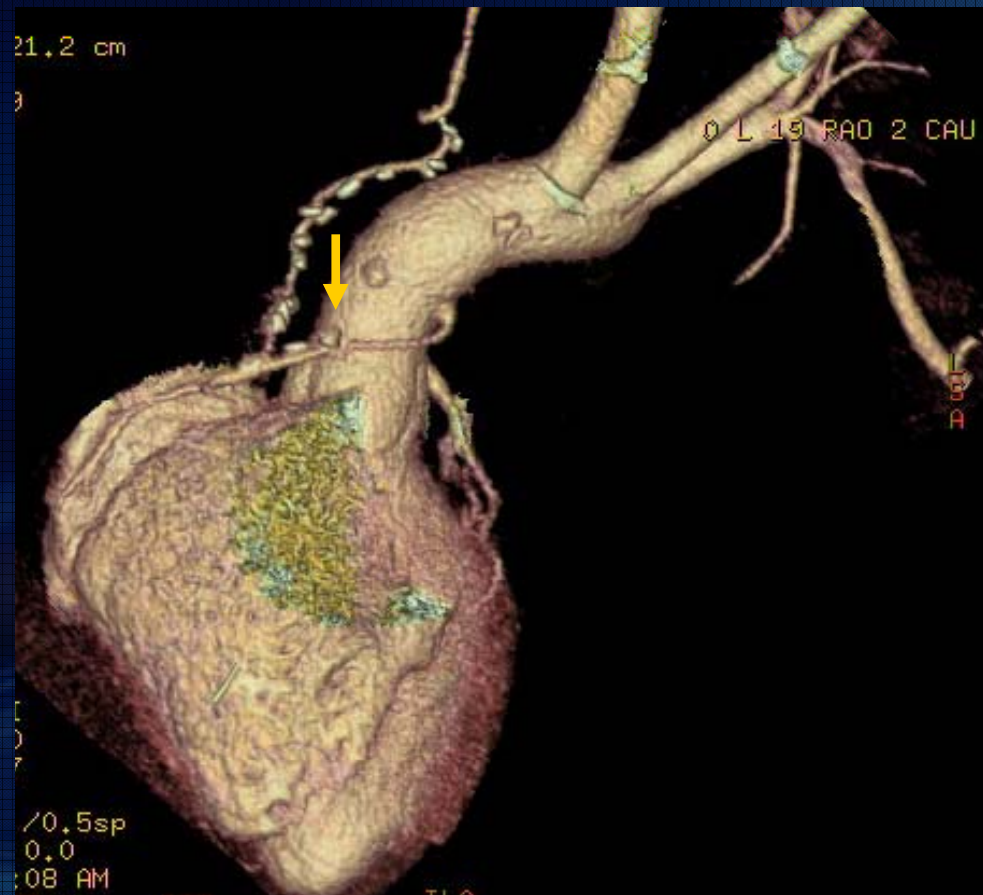
1. Observation because FFR > 0.8
2. CABG because dynamic FFR drop and chest pain

We decided to perform CABG
for prevent syncope, chest pain and
possible sudden death.

CABG procedure

RIMA to RCA anastomosis
Ligation of proximal RCA

CT angiography after CABG



Patient is asymptomatic after CABG

High take off of RCA

- In the majority of patients, the RCA courses between the aortic root and the pulmonary artery
- Ischemia : acute take-off from the aorta and compression between the aorta and the pulmonary artery.
- MI and sudden death : > 30%

Discussion point

- Can we apply FFR for evaluation of ischemia on dynamic compression like high take off RCA and myocardial bridge?
- What is cut off value of FFR on dynamic compression?
- Does FFR value above 0.8 or 0.75 mean always insignificant?

Fixed stenosis vs Dynamic compression



Fixed stenosis

Dynamic compression