

Distal Coronary Pressure Hemodynamics During IABP Support in a Patient with ACS

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CASE: 76 y.o. male

A 76-year-old male with hypertension suffered from severe chest pain suddenly at midnight.

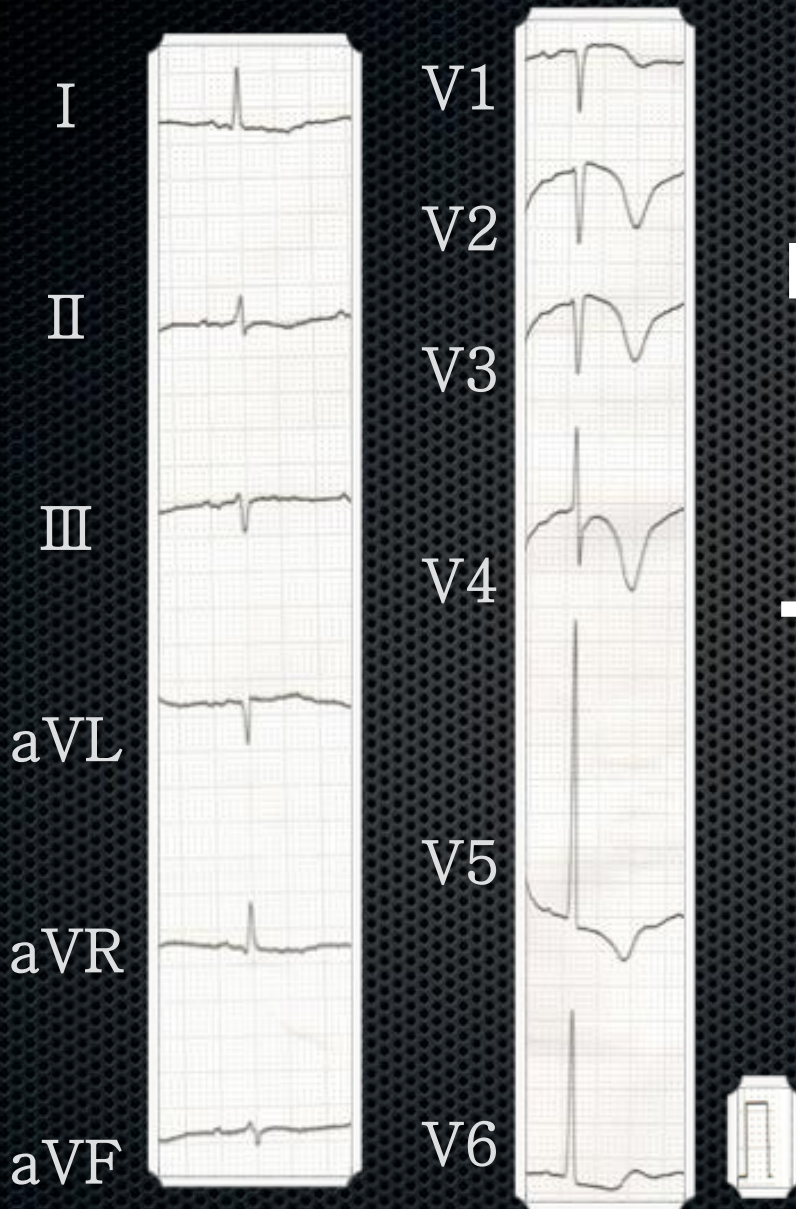
Next morning he had dyspnea , he was transferred to our hospital.

Vital signs

BT 35.9°C, BP 172/90 mmHg,

HR 78bpm, SpO2 (Reservoir mask 10L) 98%

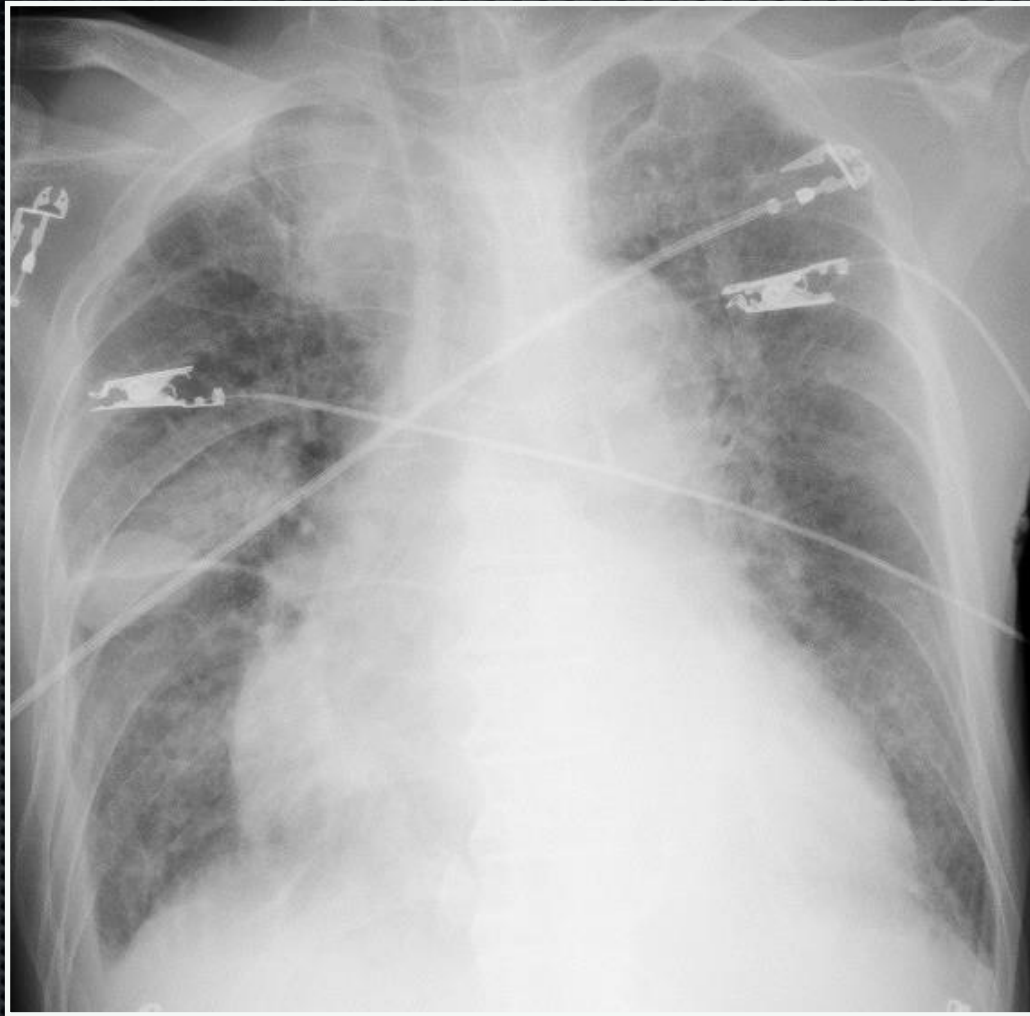
ECG



ECG showed remarkable T inversion in precordial leads.

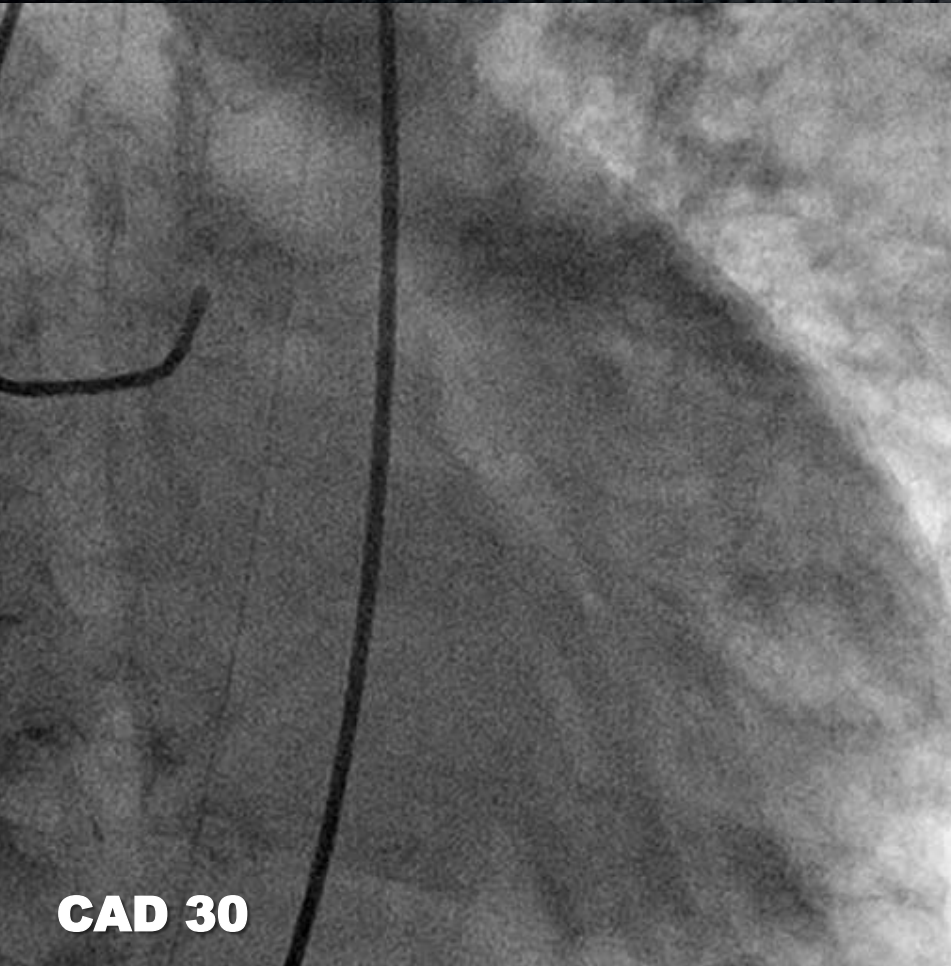
TTE showed hypokineses in antero-septal and infero-posterior wall (LVEF 30%).

Chest X-ray



We diagnosed as NSTEMI complicated with acute congestive heart failure.

CAG



CAD 30

LAD #6:90%, #7:75%



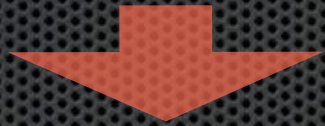
LAO 20 CRA 20

RCA #1:75%, #4AV:75%



PCI supported by IABP and artificial respirator.

NSTEMI with MVD, AHF, low EF



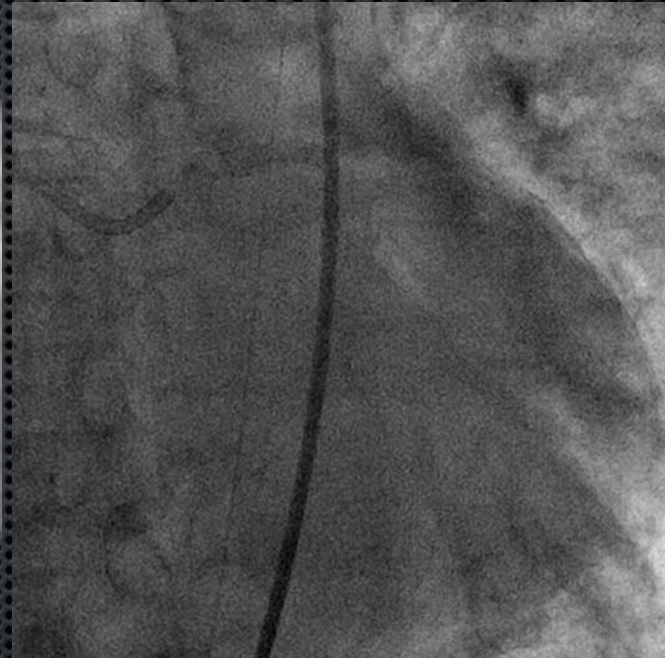
IABP + Respirator → PCI



He couldn't endure dyspnea during PCI, thus we decided to intubate him.



PCI (LAD)



Stenting

Xience Xpedition 3.0/38

<<System>>

Sheath:7Fr long GC:JL 4.0 7Fr GW:Route IVUS:Volcano



LVEDP (before PCI)

EDP 35mmHg



IABP support
EDP 26mmHg



FFR(RCA)

papaverine 8mg i.c



IABP OFF

FFR:0.84



IABP 2:1

FFR:0.77





FFR and coronary flow

$$\text{FFR} = \frac{Q_{\text{max,stenosis}}}{Q_{\text{max,normal}}} = \frac{(P_d - P_v)/R}{(P_a - P_v)/R} = \frac{P_d}{P_a}$$

FFR is not able to be evaluated precisely when maximum flow is inadequate.

- Flow** ↓
- wedge with guiding cath
 - peripheral embolism
 - blood pressure ↓↓
 - LVEDP ↑↑

FFR may be underestimated!

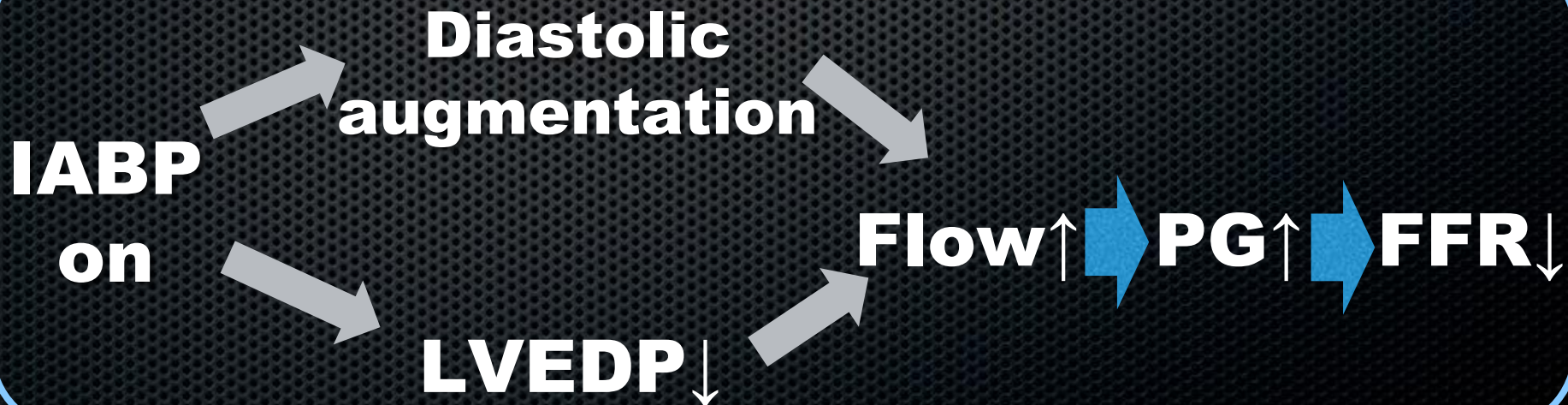


Why did FFR decrease under IABP support?

In the situation that

the flow extremely decreased....

FFR(IABP off) might be underestimated.





Summary

- **We reported a NSTEMI case complicated with acute heart failure whose FFR was changed during IABP support.**
- **IABP was effective to reduce LVEDP and increase in maximum coronary flow.**