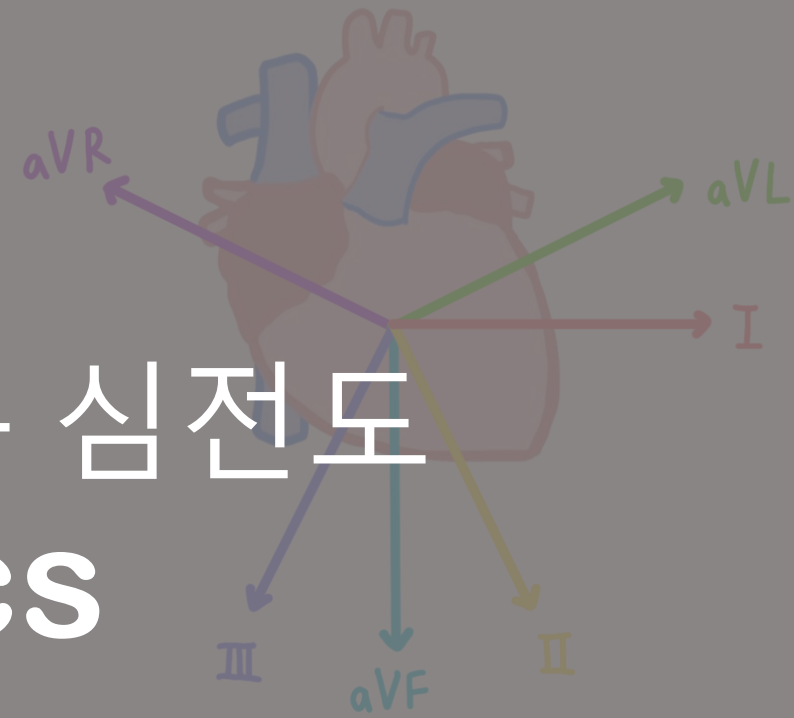


# 이제와 물어볼 수도 없는 심전도 :STEMI mimics

Seongrae Cho

Hanyang University Seoul Hospital

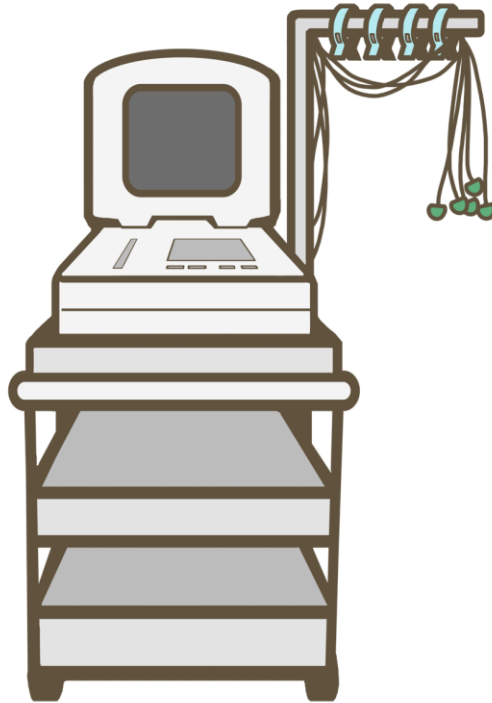


# Key tools for STEMI



History

chest pain characteristics



ECG



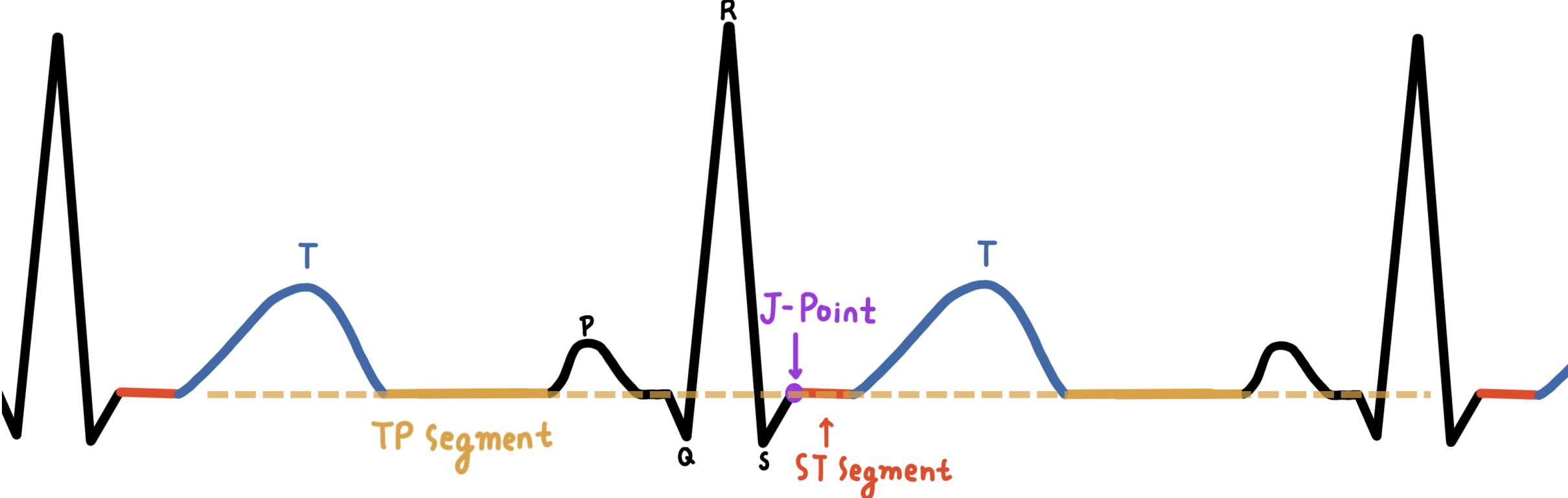
Cardiac enzymes

Troponin, CK-MB

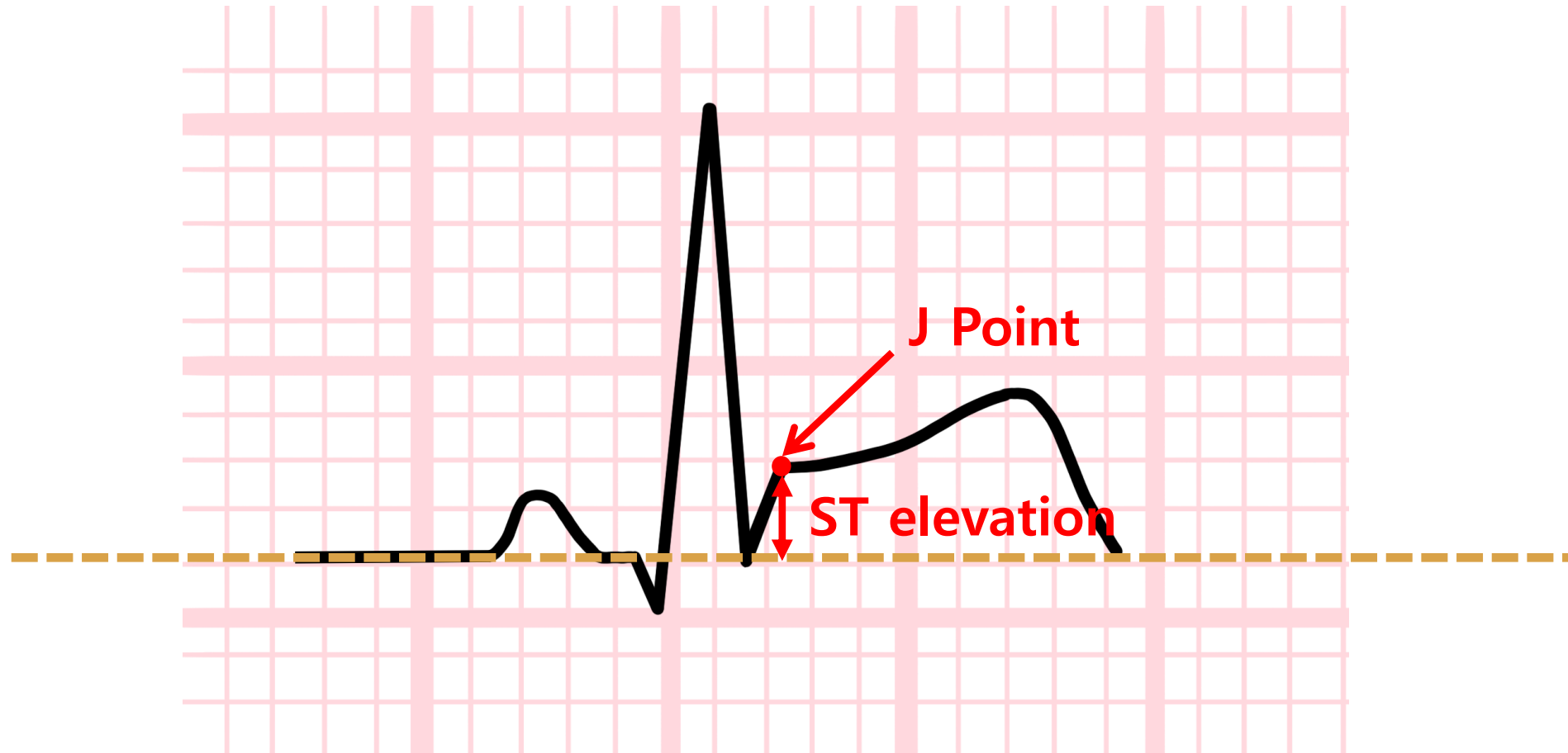
# 얼마나 올라야 STEMI?

- New ST elevation at the **J point** in 2 contiguous leads
  - **> 0.1 mV (=1mm =1 small box)**
- **EXCEPT in V2 V3**
  - **V2 V3:**
    - $\geq 0.2$  mV (=2mm, **2 small box**) in **man**
    - $\geq 0.15$  mV (=1.5mm, **1.5 small box**) in **women**

# What are ST segment and J-point?

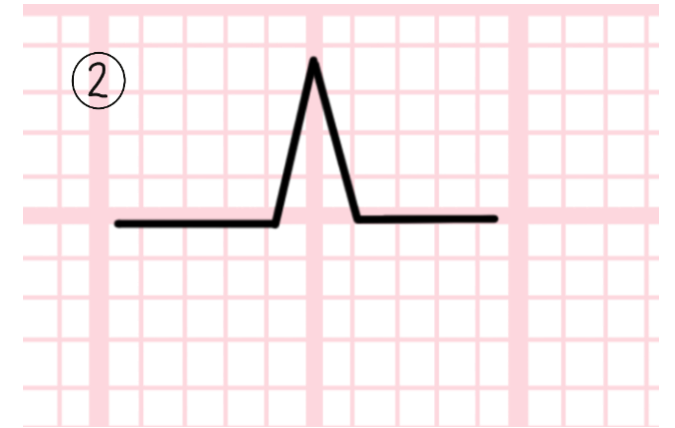
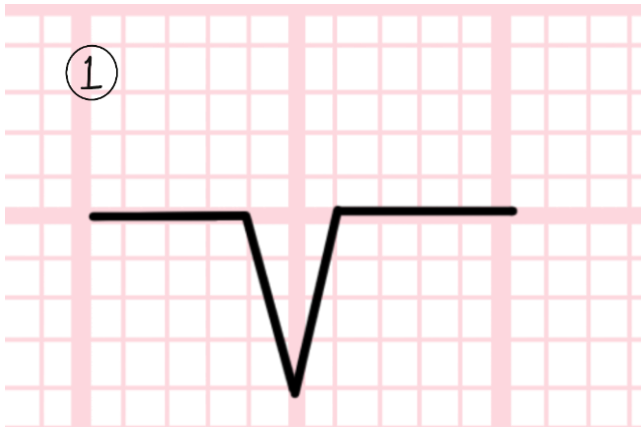
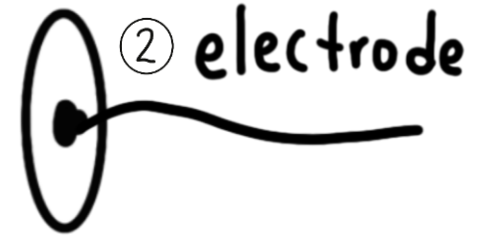
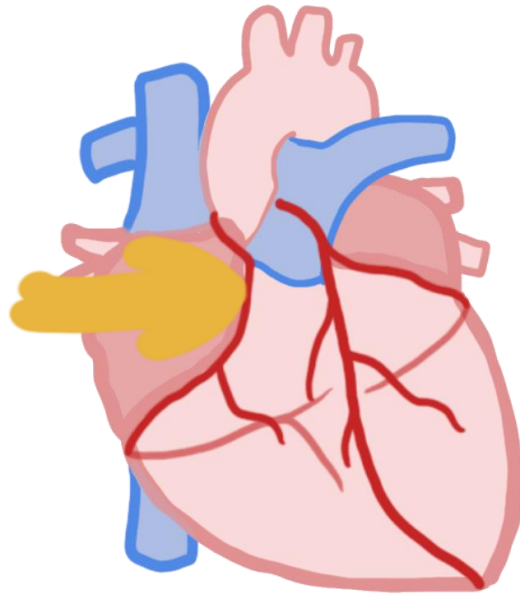


# ST segment가 얼마나 올랐는가?



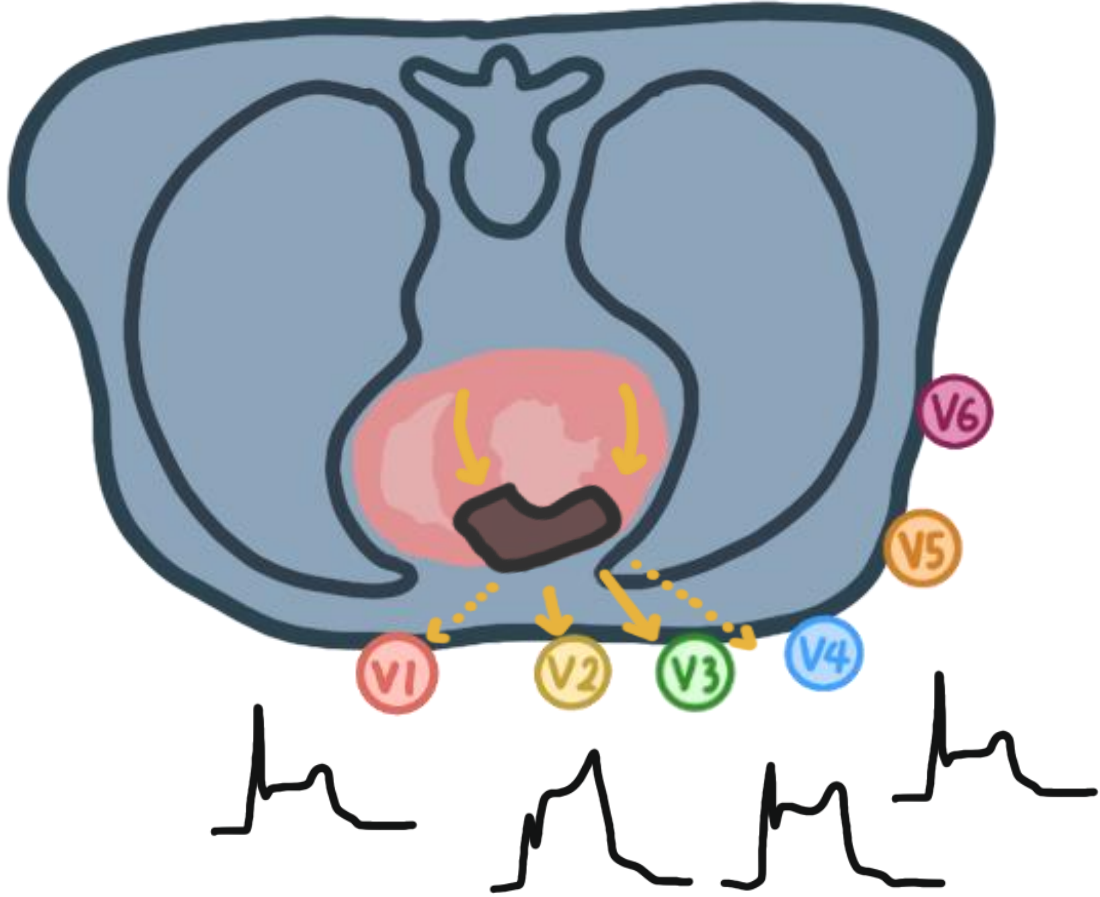
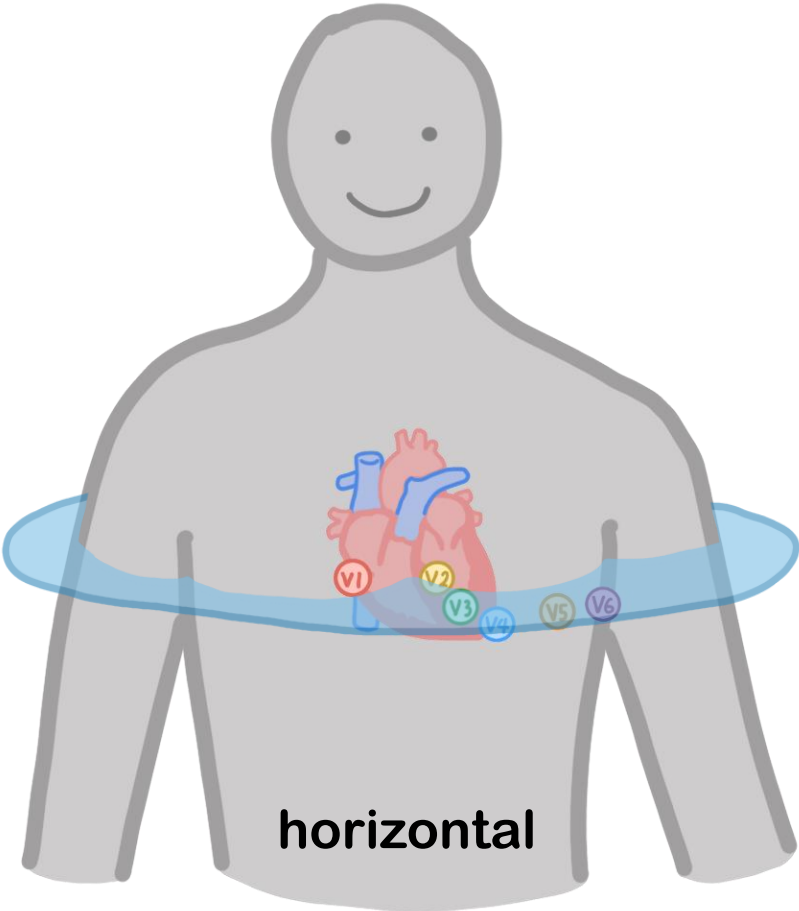
- New ST elevation at the J point in at least 2 contiguous leads
- $>0.1$  mV (1 small box)

# ECG recording: basic principles

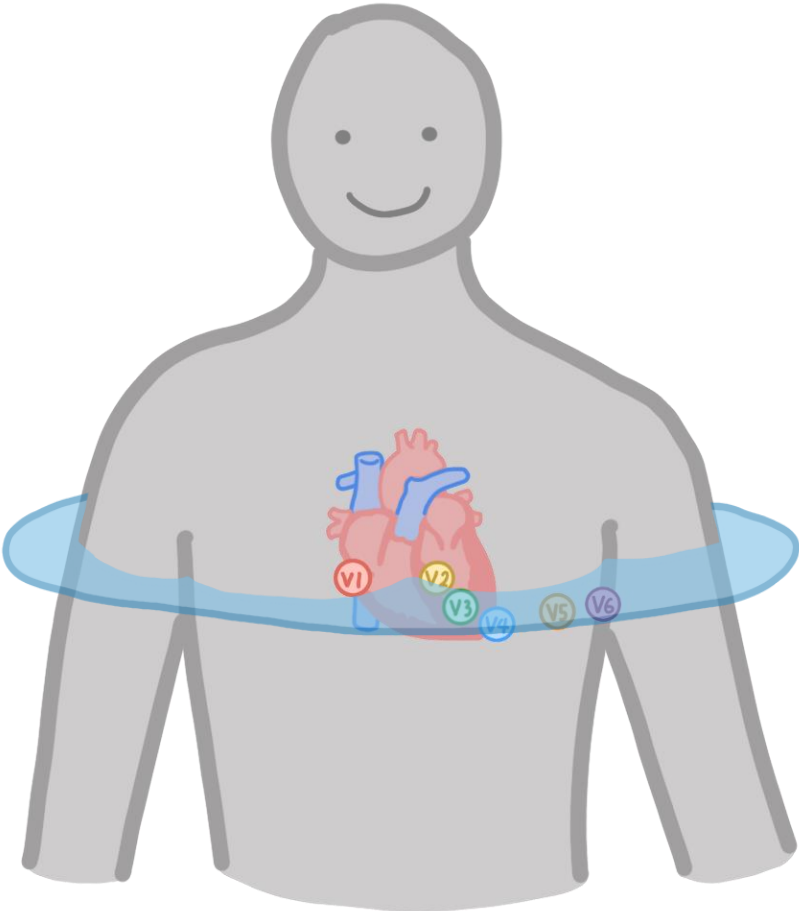


# Current Of Injury (손상전류)

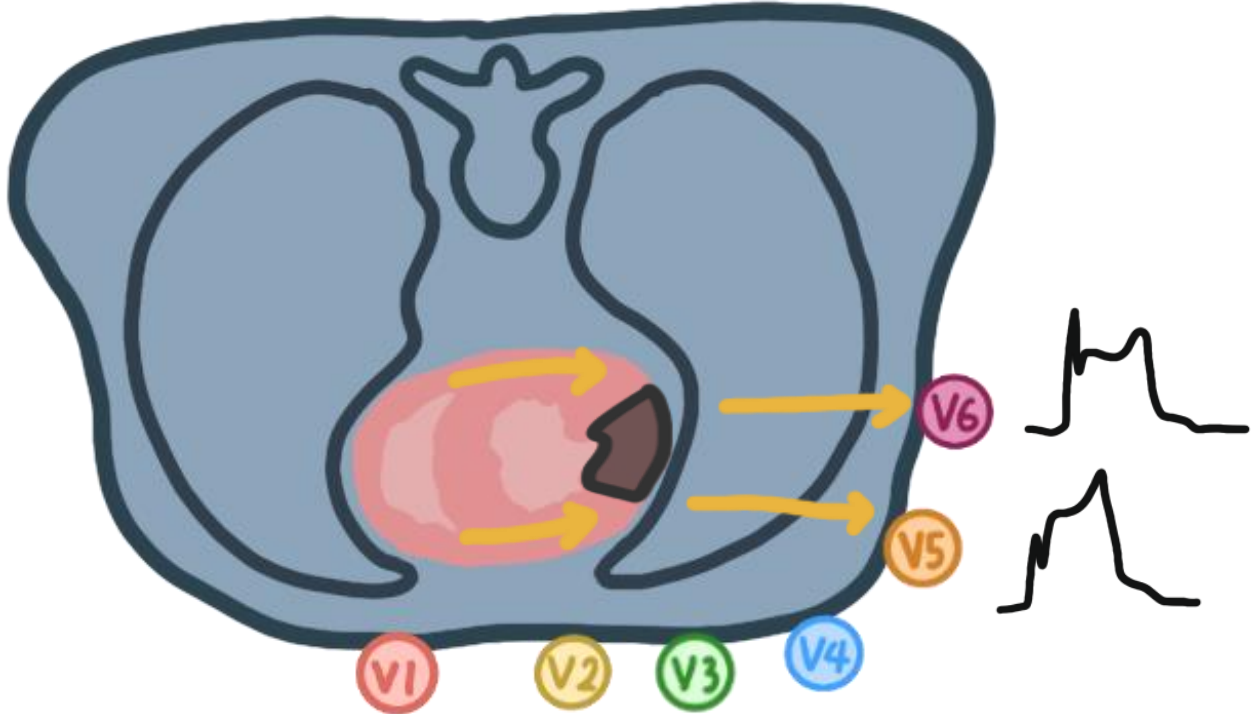
## Anteroseptal STEMI(LAD)



# Current Of Injury



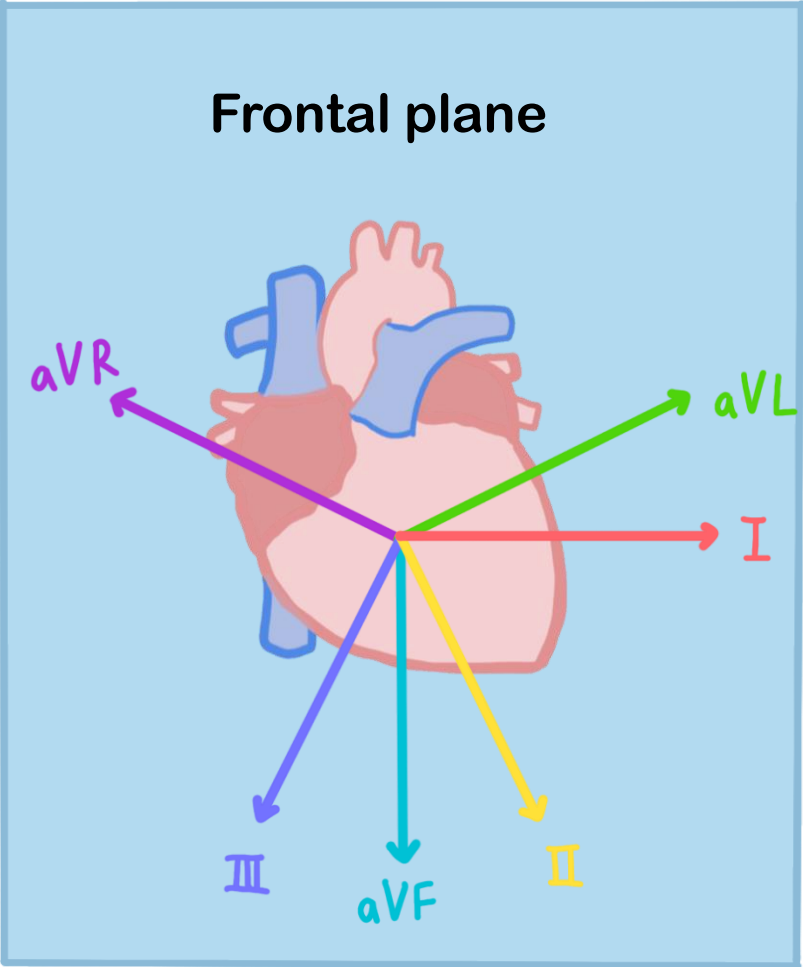
## Lateral STEMI(LCX)



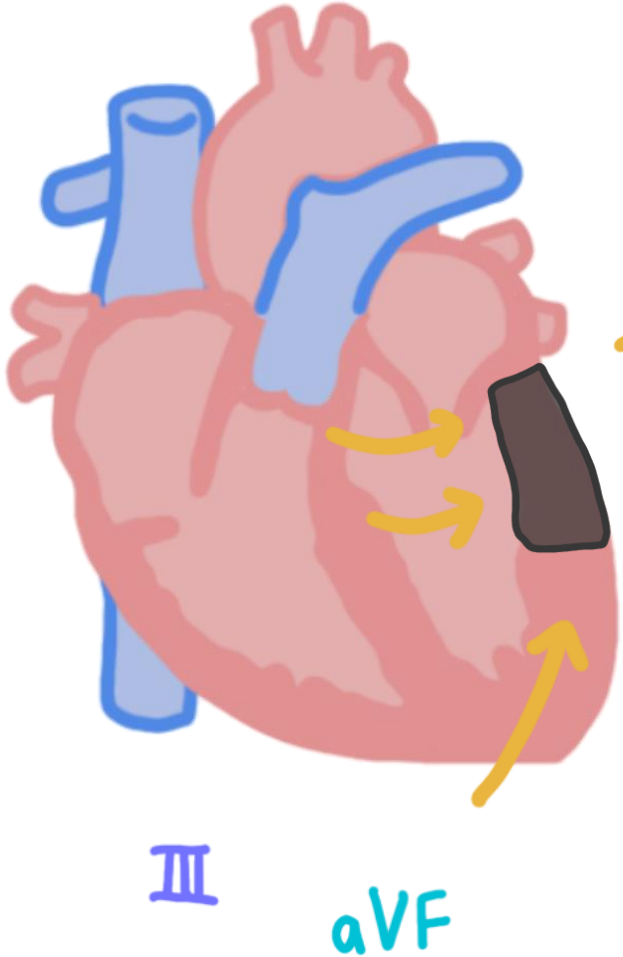


# Current Of Injury

## Lateral STEMI(LCX)



aVR



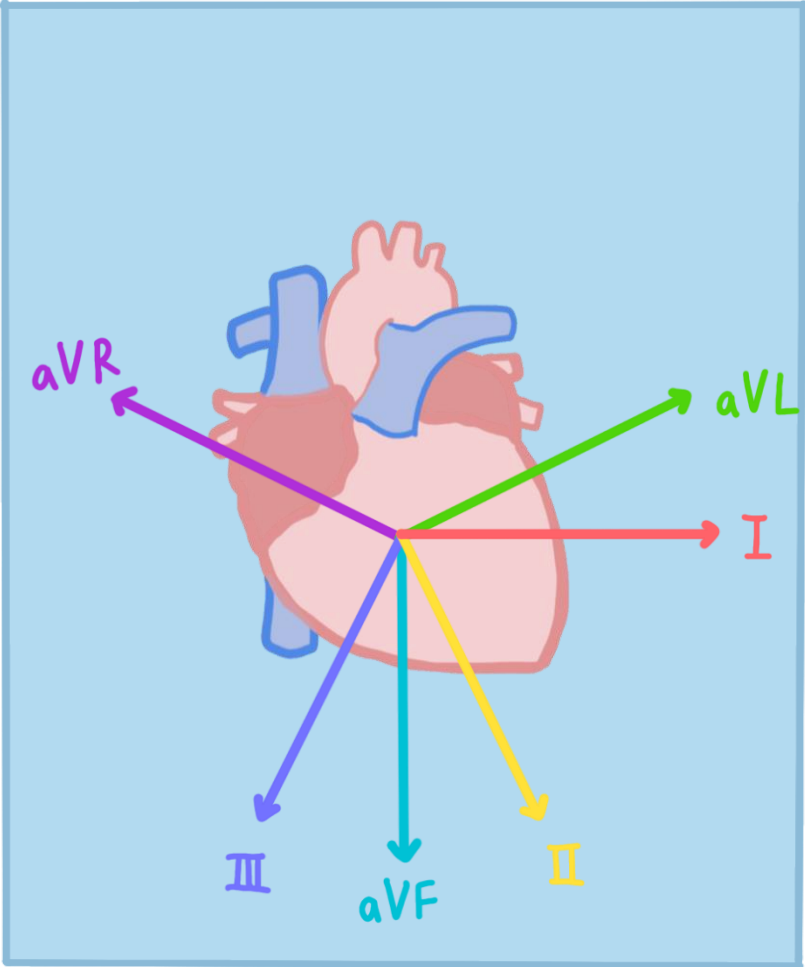
aVL



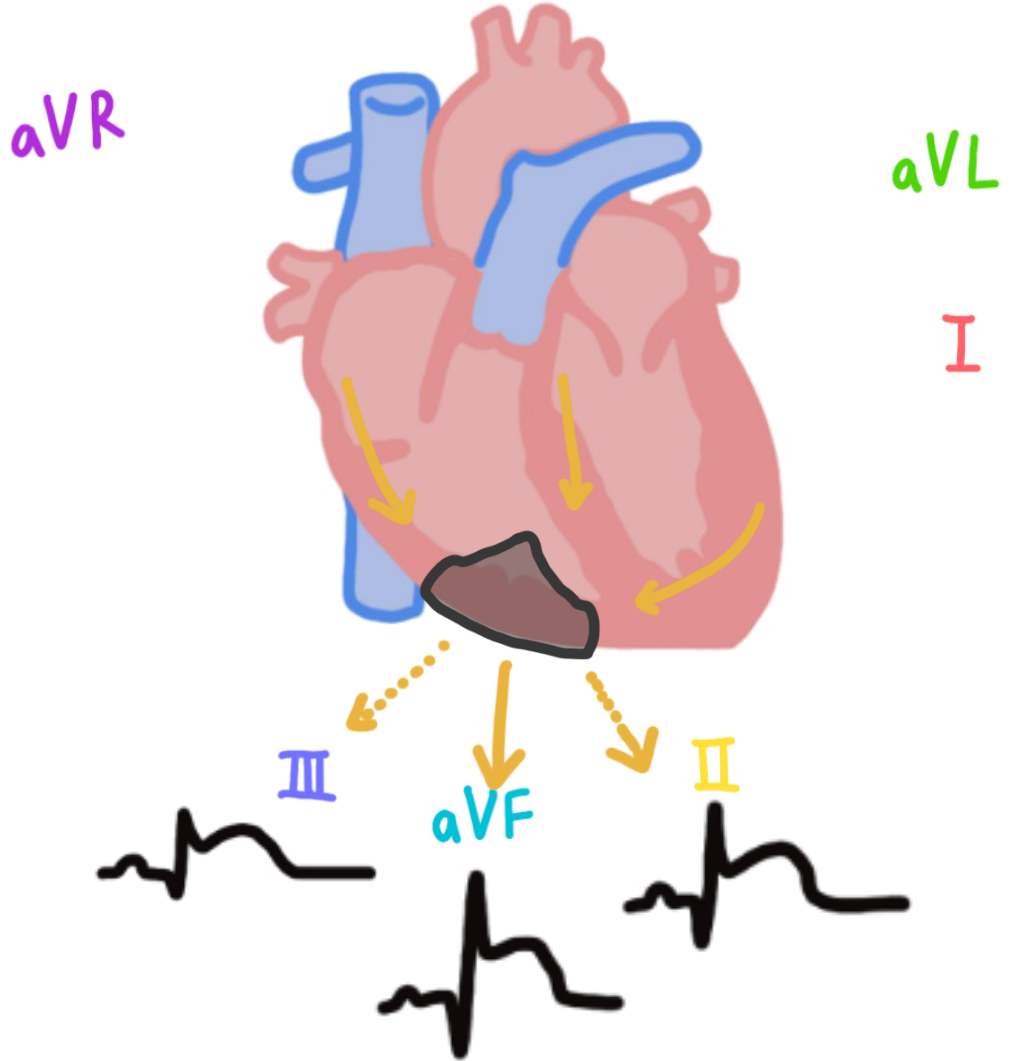
I



# Current Of Injury



# Inferior STEMI(RCA)



# Grouping ECG LEADS

I	aVR	V1	V4
II	aVL	V2	V5
III	aVF	V3	V6

**V1~V4: anteroseptal (LAD)**

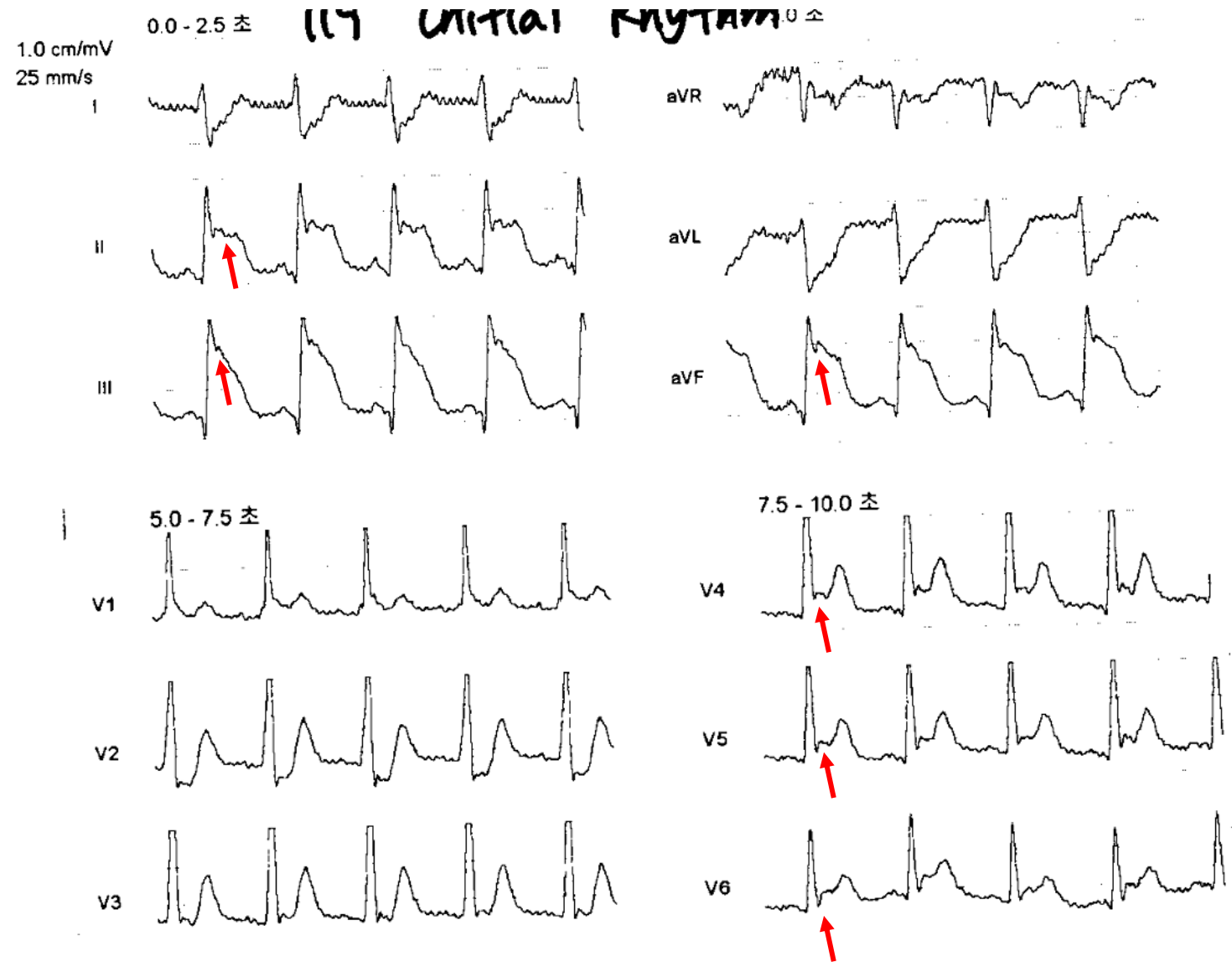
**V5~6, I, aVL: Lateral(LCX)**

**II, III, aVF: inferior(RCA)**

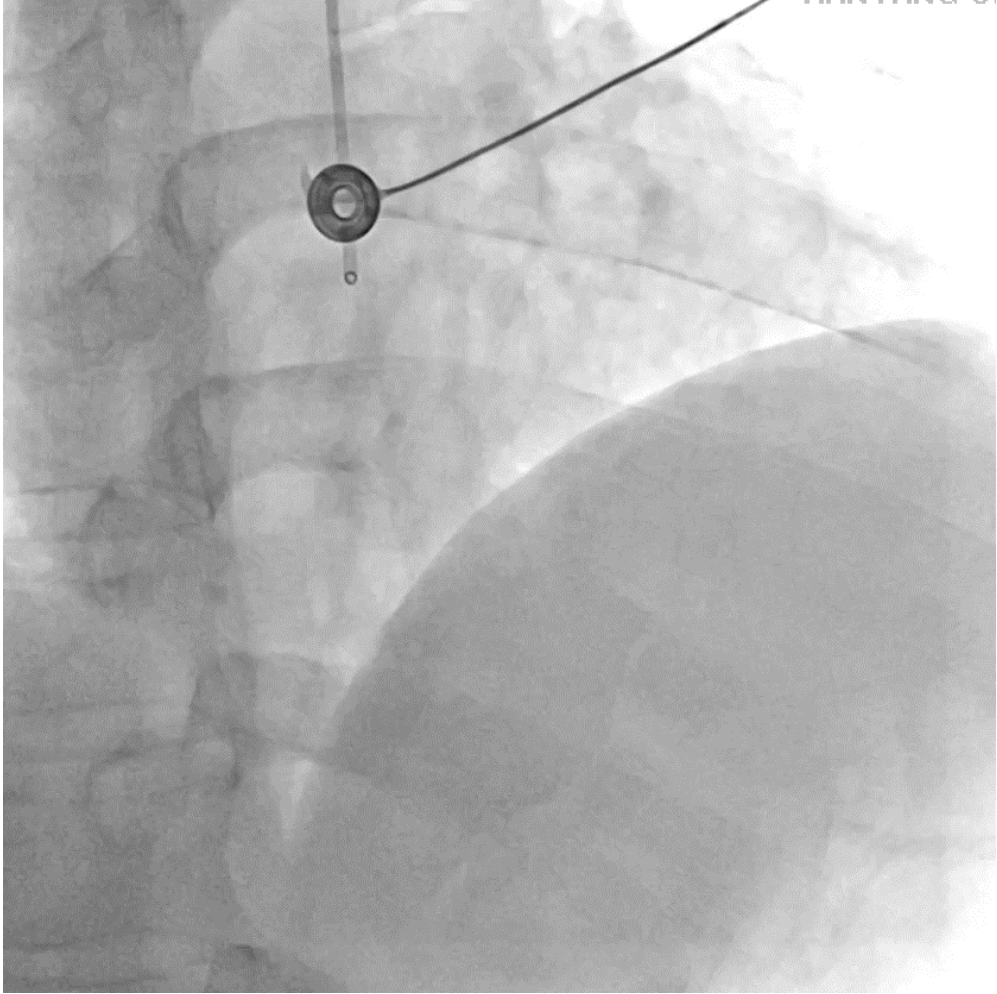
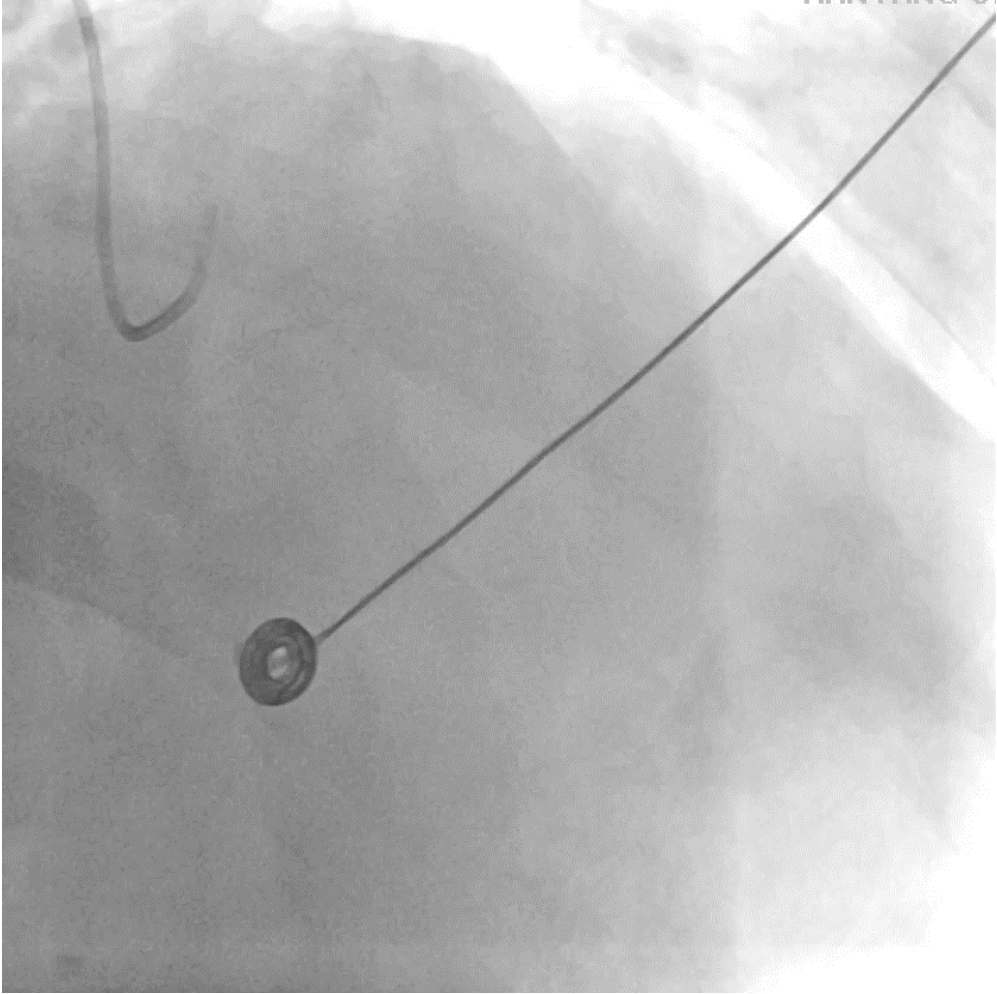
# STEMI MIMICS

# STEMI MIMICS Case #1

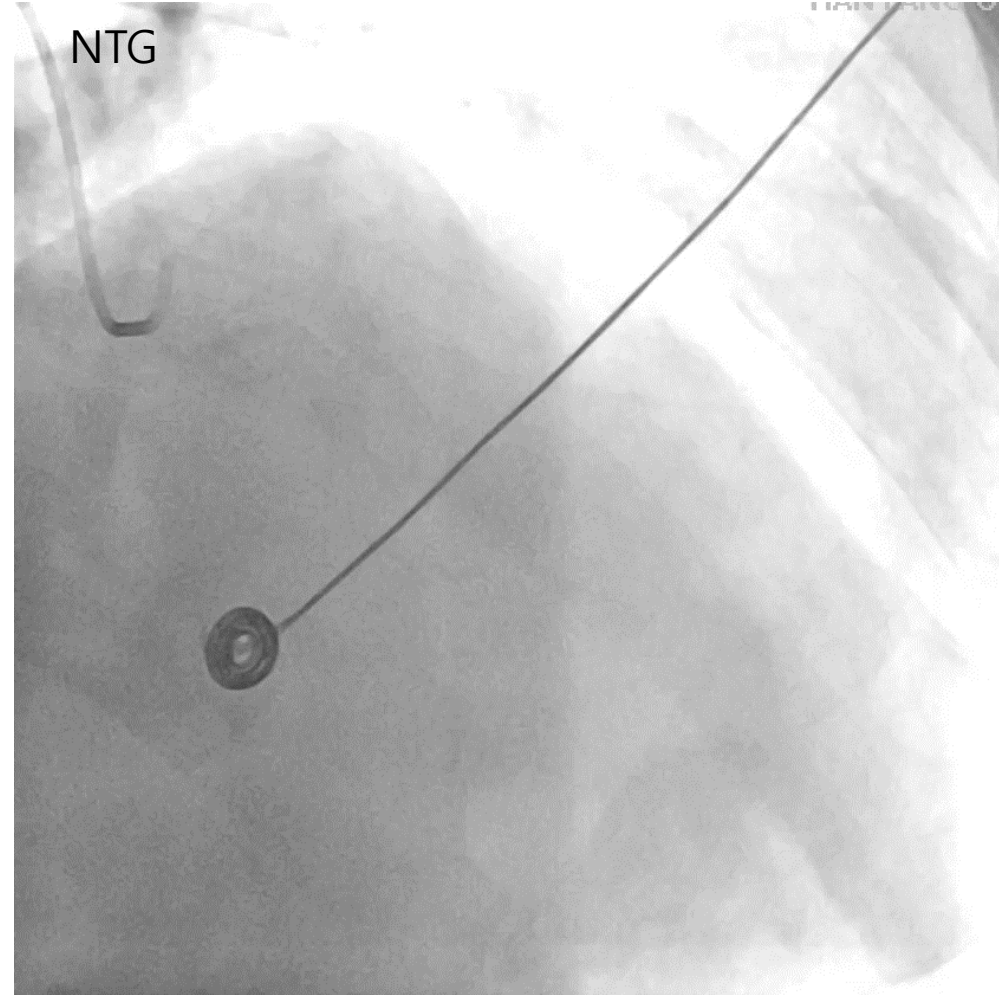
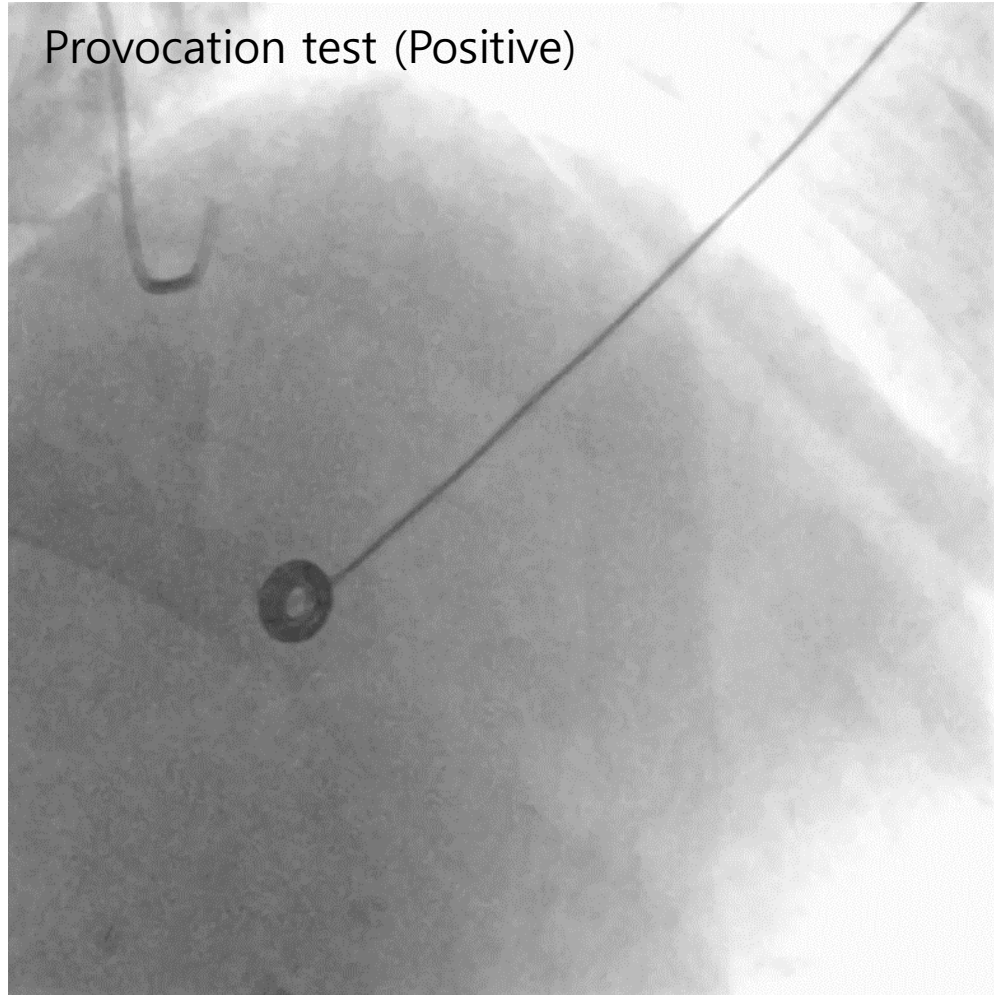
- ER, M/44, Chest pain
- V Fib → 150J → ROSC



# STEMI MIMICS Case #1



# STEMI MIMICS Case #1



# STEMI MIMICS Case #1

## Coronary Vasospasm

- 급성 심근경색과 매우 유사한 ST상승 패턴을 보임, ECG만으로는 STEMI와 비교하기 힘들다.
- STEMI와 달리 ECG변화는 **일시적**이고 혈관확장제로 가역적이며, 심근 괴사와 관련이 없다.
- 대부분의 경우 젊은 남자
- CAG와 provocation test 진행 중에 **defibrillation**을 해야할 상황을 대비

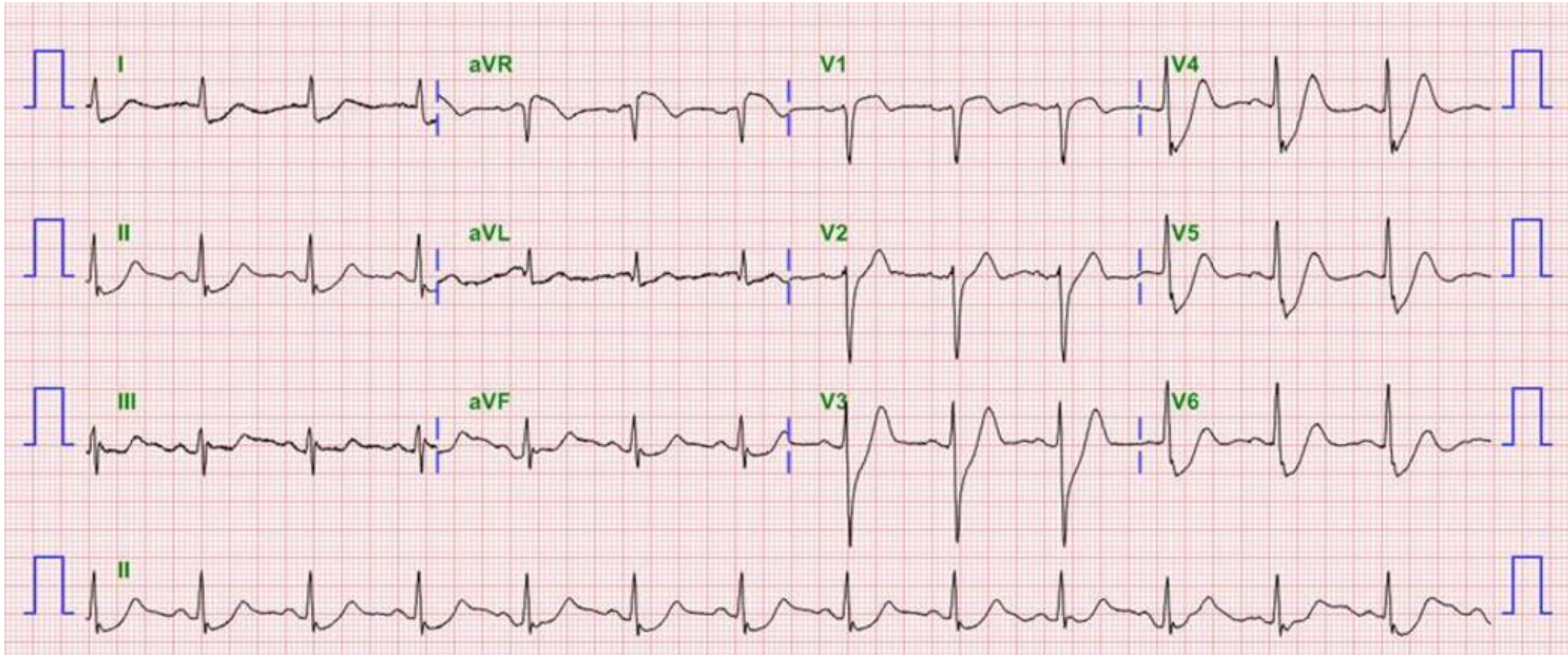


# STEMI MIMICS Case #2

- ER, M/56, Chest pain

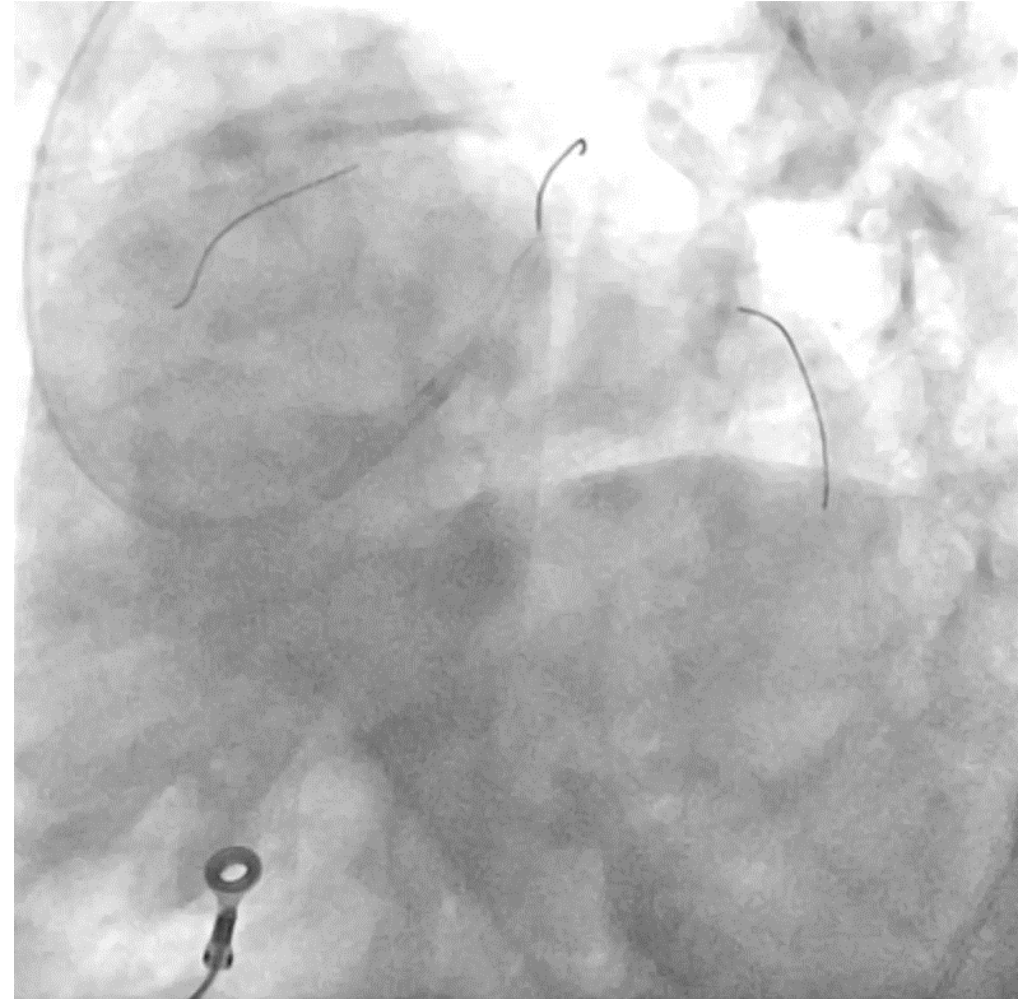
Rate	78
RR	769
PR interval	160
QRSD	102
QT	408
QTc	465
.....AXIS.....	
P	70
QRS	35
T	90

Normal sinus rhythm  
Marked ST abnormality, possible inferolateral subendocardial injury  
Abnormal ECG



# STEMI MIMICS CASE #2

- M/56, Chest pain



# STEMI MIMICS Case #2

## ST elevation in aVR

- LM 혹은 very proximal LAD의 심한 협착
- Severe 3VD(predicts the need for CABG)
- Hypoxia or hypotension, for example following resuscitation from cardiac arrest

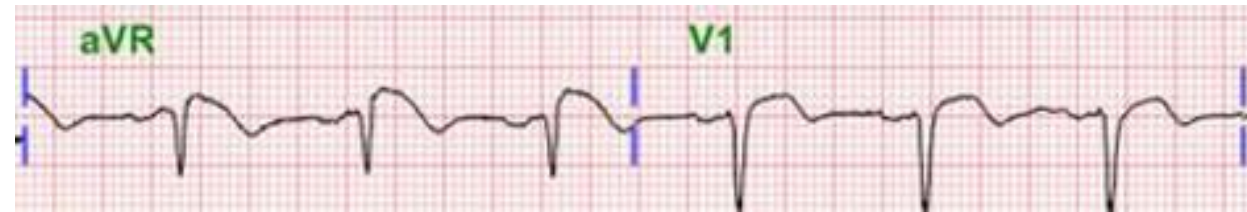
- New ST elevation at the **J point** in 2 contiguous leads
  - **> 0.1 mV (=1mm =1 small box)**

**left main NSTEMI with ST segment elevation in lead aVR**

# STEMI MIMICS Case #2

## LMCA AMI

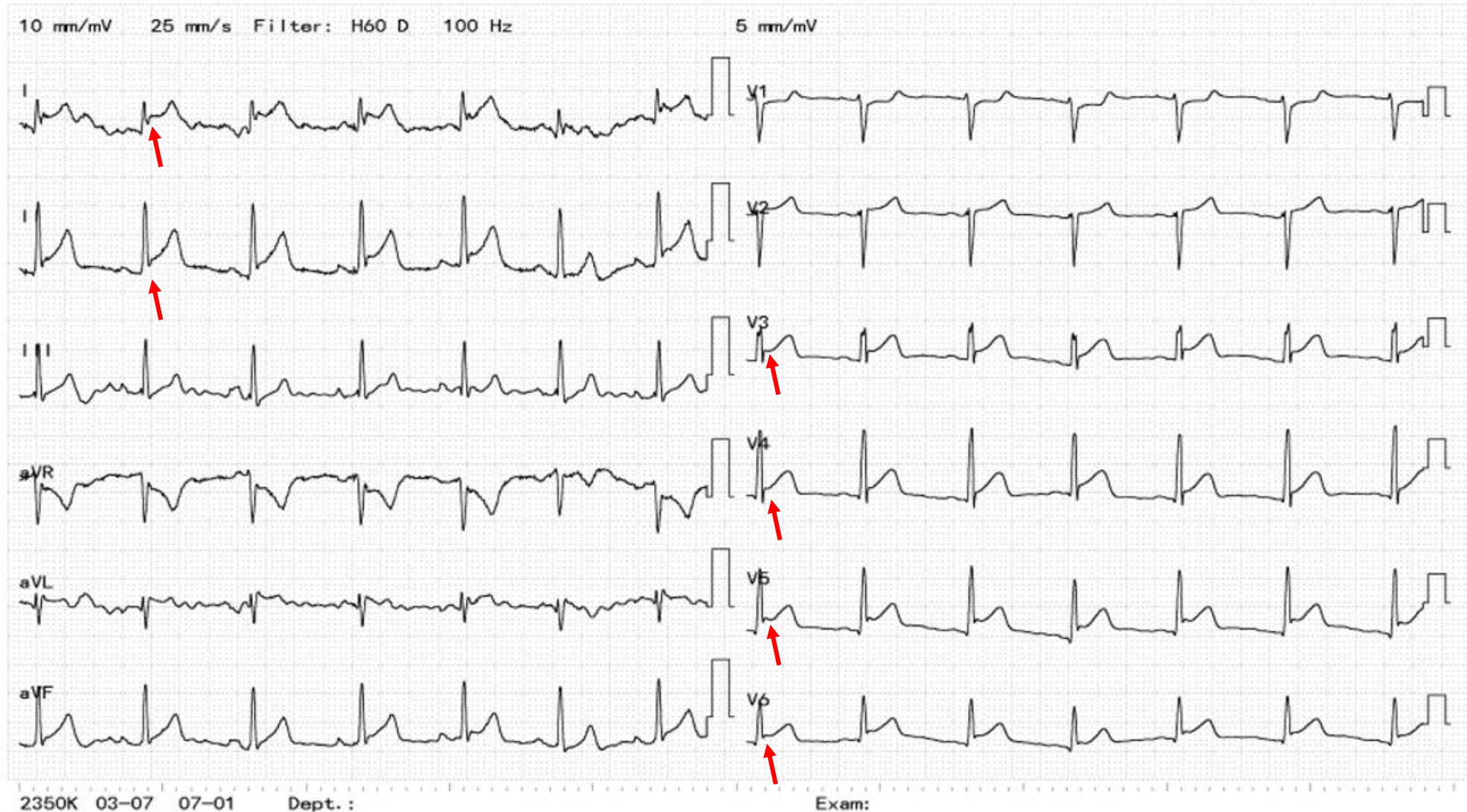
- Widespread horizontal ST depression
  - 가장 두드러지는 lead I, II, V4-V6
- aVR에서 ST분절 상승(>1mm)
- aVR에서 ST분절 상승(aVR>V1)



**Prepare Intubation kit, ECMO..**

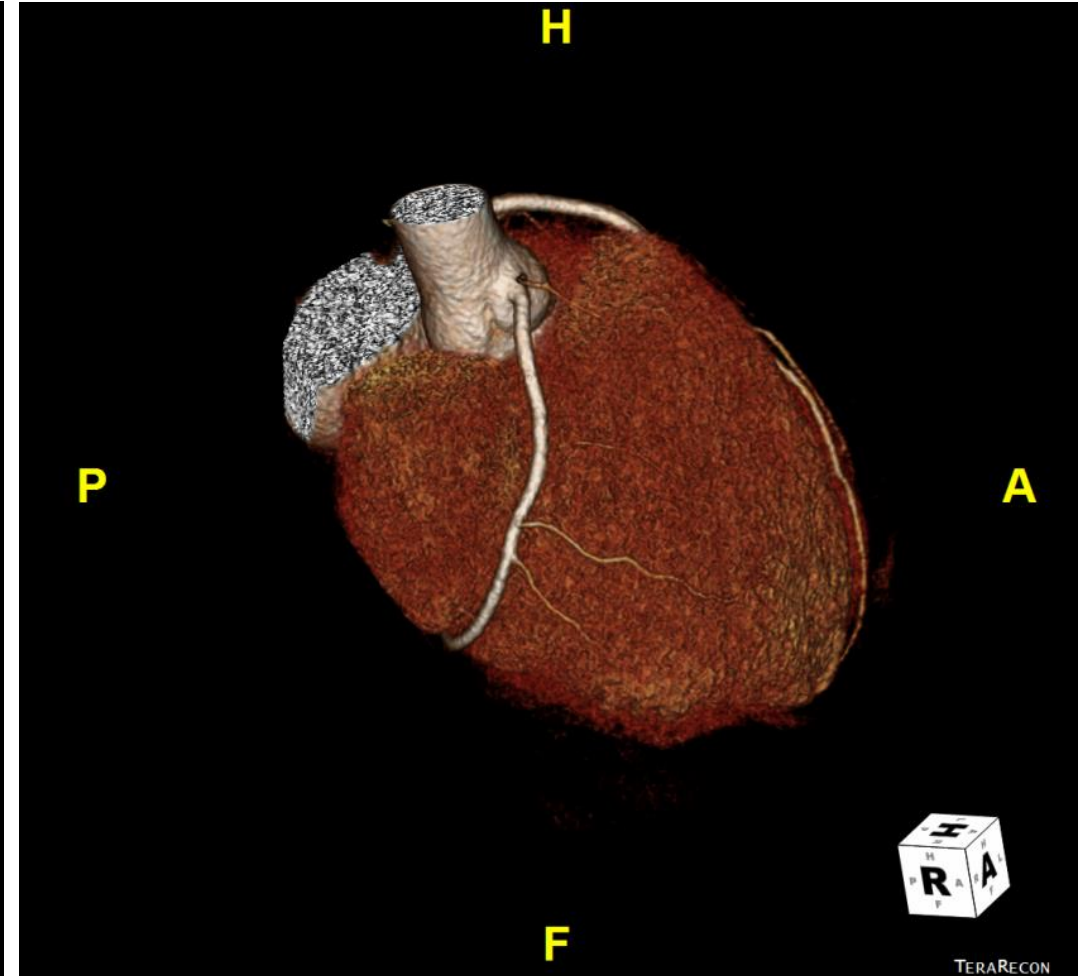
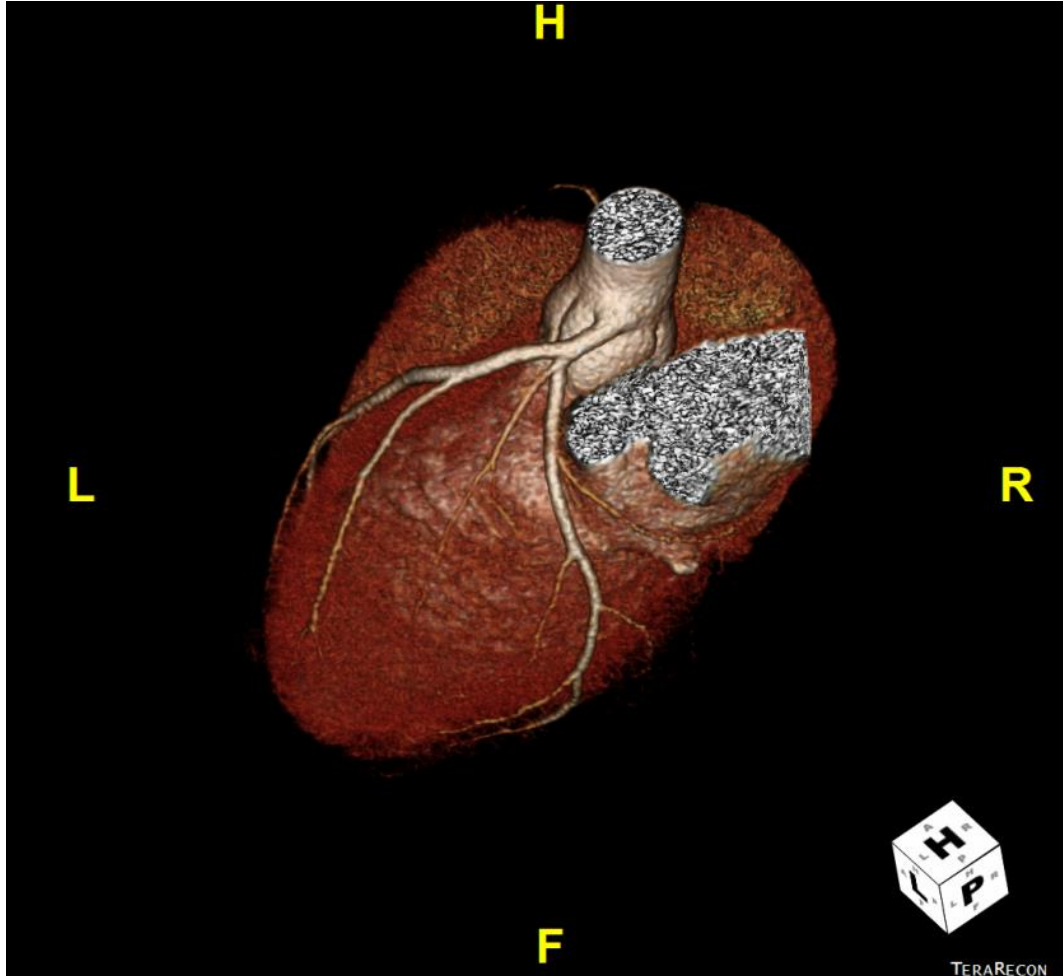
# STEMI MIMICS CASE #3

- ER, **M/18** Chest pain



# STEMI MIMICS CASE #3

- M/18 Chest pain



# STEMI MIMICS Case #3

## Pericarditis

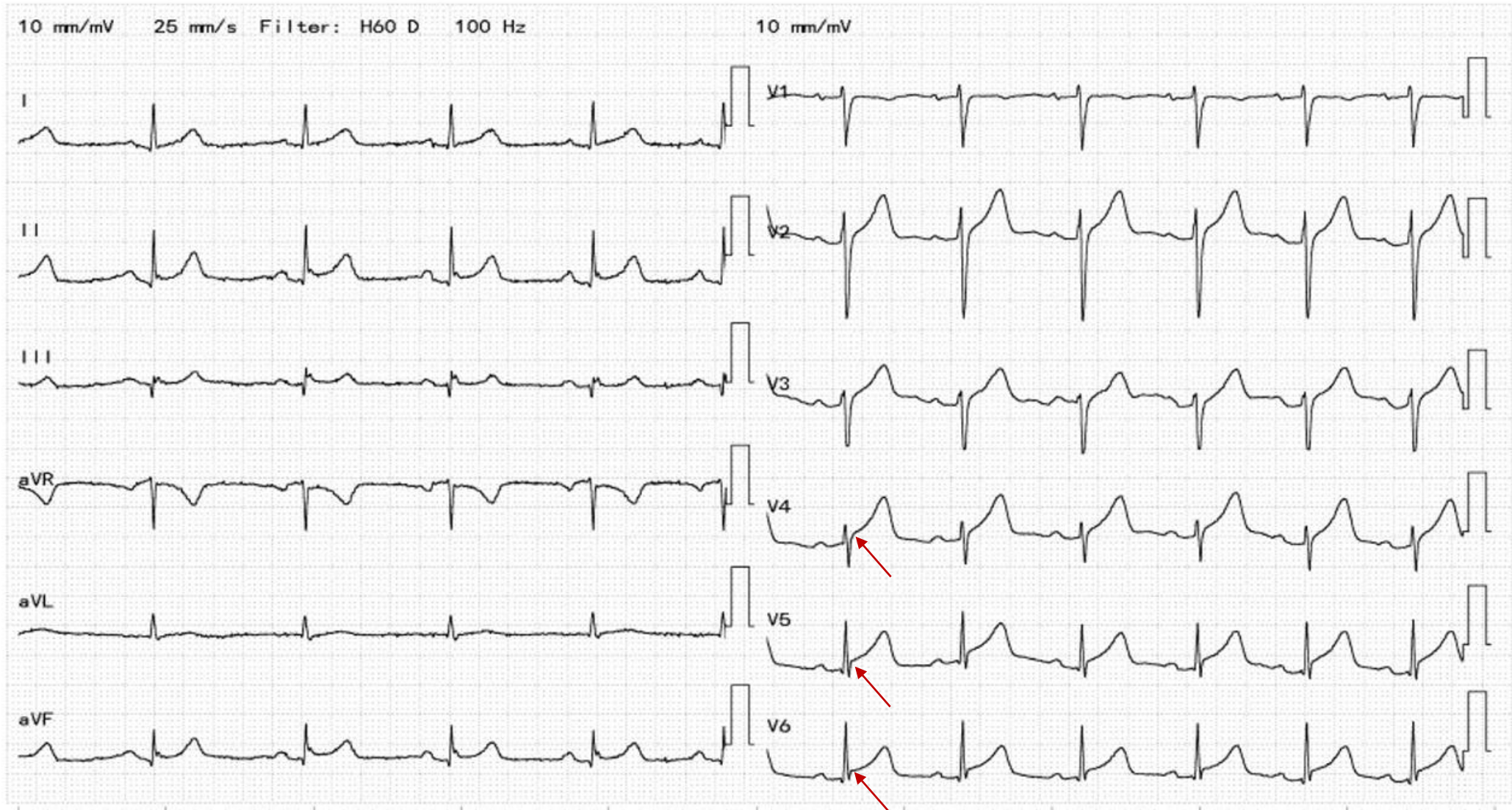
- 전반적인 ST 분절 상승
- PR 하강
- Concave upward
- QRS 말단의 절흔(notching)



- **흡기 시나 기침할 때, 바로 누울 때 악화되는 날카로운 흉통**

# STEMI MIMICS CASE #4

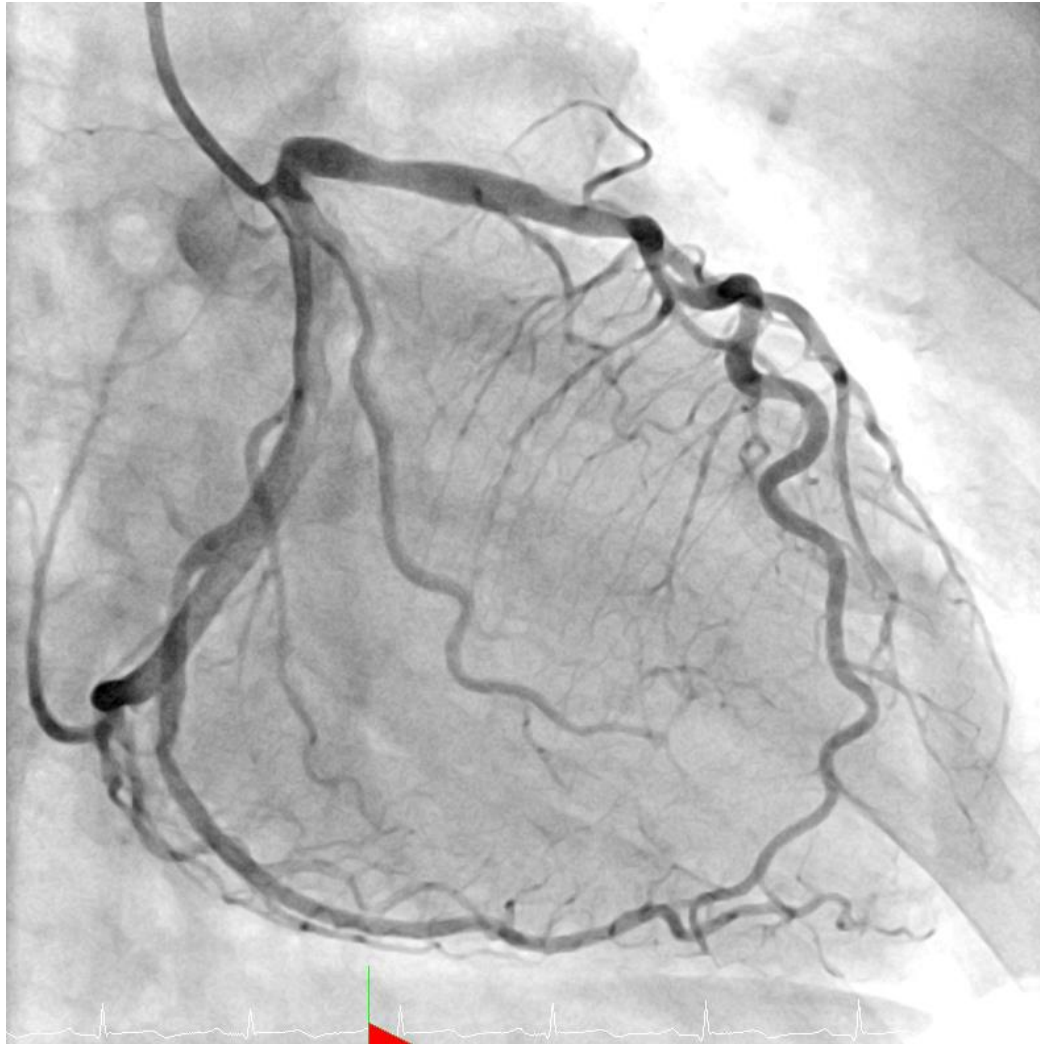
- F/66 Cerebral infarction, Sx(-), Tnl elevation





# STEMI MIMICS CASE #4

- F/66 Cerebral infarction, Sx(-), Tnl elevation



# STEMI MIMICS Case #4

## Stress-induced cardiomyopathy

- 극심한 스트레스로 발생하는 심근병증
- 흉통과 호흡곤란
- 40~80%환자에서 ST분절 상승
  - 주로 전흉부 유도이지만 하벽이나 측벽에서도 관찰됨
- Cardiac enzyme상승

**r/o AMI → CAG**

# Take Home message

## Coronary Vasospasm

- STEMI와 유사한 ST상승 패턴, ECG변화는 일시적이고 혈관확장제로 가역적
- CAG와 provocation test 진행 중에 **defibrillation**을 해야할 상황을 대비

## LM AMI

- Widespread ST depression, aVR에서 ST분절 상승(>1mm)
- LM AMI, Prepare Intubation kit, ECMO..

## Pericarditis

- 전반적인 ST 분절 상승
- 증상이 중요! (흡기 시나 기침할 때, 바로 누울 때 악화되는 날카로운 흉통)

## Stress-induced cardiomyopathy

- STEMI와 감별 어려움 증상, 심전도, 심근효소 모두 비슷하게 나타날 수 있음
- CAG로 rule out 필요!

**THE END**