

Early defects in non ECG gated CE-CT may become strong diagnostic tool for NSTEMI.

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Introduction of the case

【Patient】38y male

【Chief complaint】Chest discomfort, nausea

【Present illness】

The patient had been treated diabetes from 1 year ago. Today, he felt chest discomfort after the hard work outside. It did not improve even after a while, and he came to the emergency room of our hospital.

【Coronary risk factors】

diabetes mellitus, hypertension, dyslipidemia, smoking

【Medication】

none

Physical findings

Cons clear, GCS E4V5M6

BT35.3 °C

BP 108/60mmHg, HR 78bpm

SpO2 100%(room air)

Conj: not anemic, not icteric

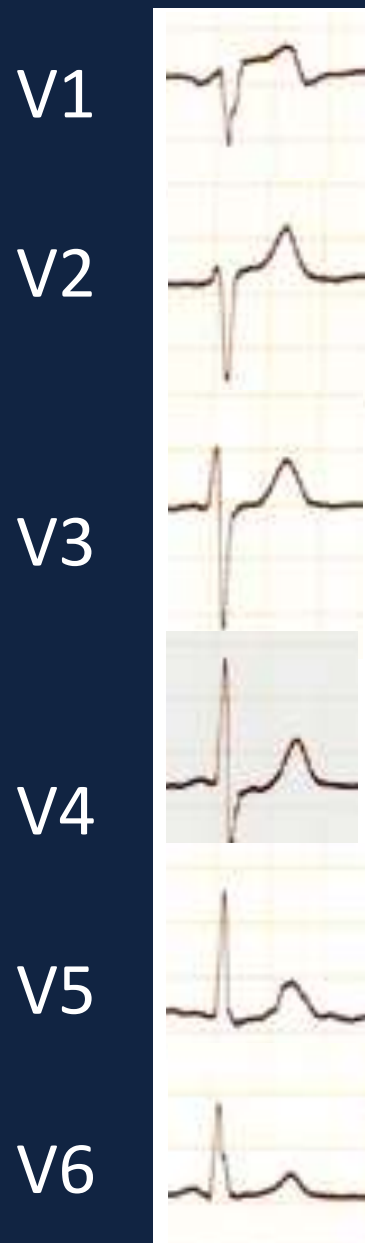
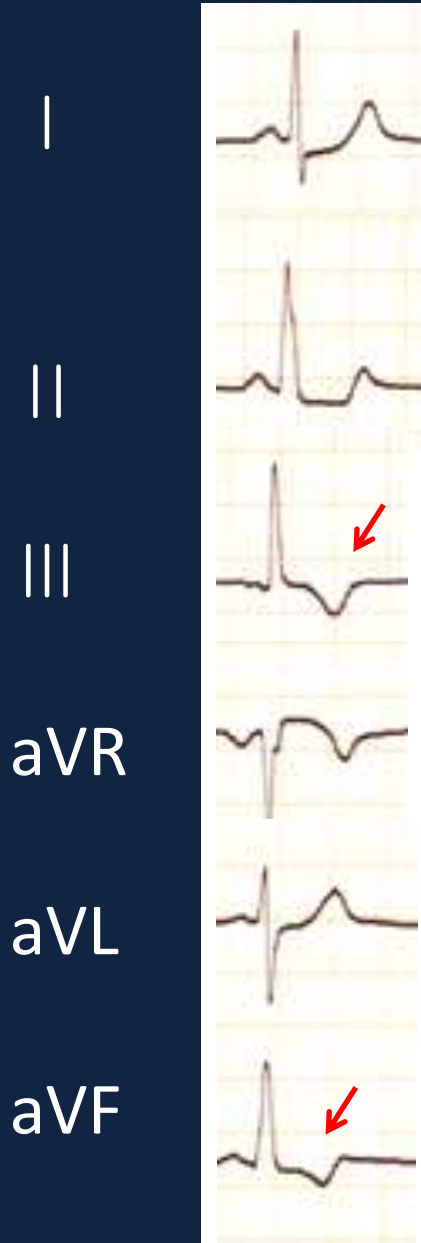
HS: S1,S2 normal, no extra sound, no murmur

RS: clear, no rale

Abd: soft and flat, normal bowel sound

Ext: edema(-/-), dor A(+/+)

ECG



HR=78
Normal sinus rhythm



Chest X-ray



UCG

EF50%, significant LVH(-)
lateral wall slightly hypo
MR(-), AR(-), TR(-)
Pericardial effusion(-)

Laboratory data

WBC	18600 / μ L	Na	141 mEq/L
RBC	529×10^4 / μ L	K	4.4 mEq/L
Hb	17.0 g/dL	Cl	101 mEq/L
Plt	27.3×10^4 / μ L	BUN	17 mg/dL
		Cr	2.21 mg/dL
AST	56 IU/L	UA	8.8 mg/dL
ALT	81 IU/L	TG	367 mg/dL
ALP	197 IU/L	HDL-C	51 mg/dL
γ -GTP	53 IU/L	LDL-C	214 mg/dL
LDH	215 U/L	Glu	147 mg/dL
TP	8.1 g/dL	HbA1c	6.7 %
Alb	5.1 g/dL	TnT	(—)
T.bil	0.9 mg/dL	D-dimer	0.2 μ g/mL
CK	161 IU/L		
CK-MB	17 IU/L		
CRP	0.19 mg/dL		

On admission

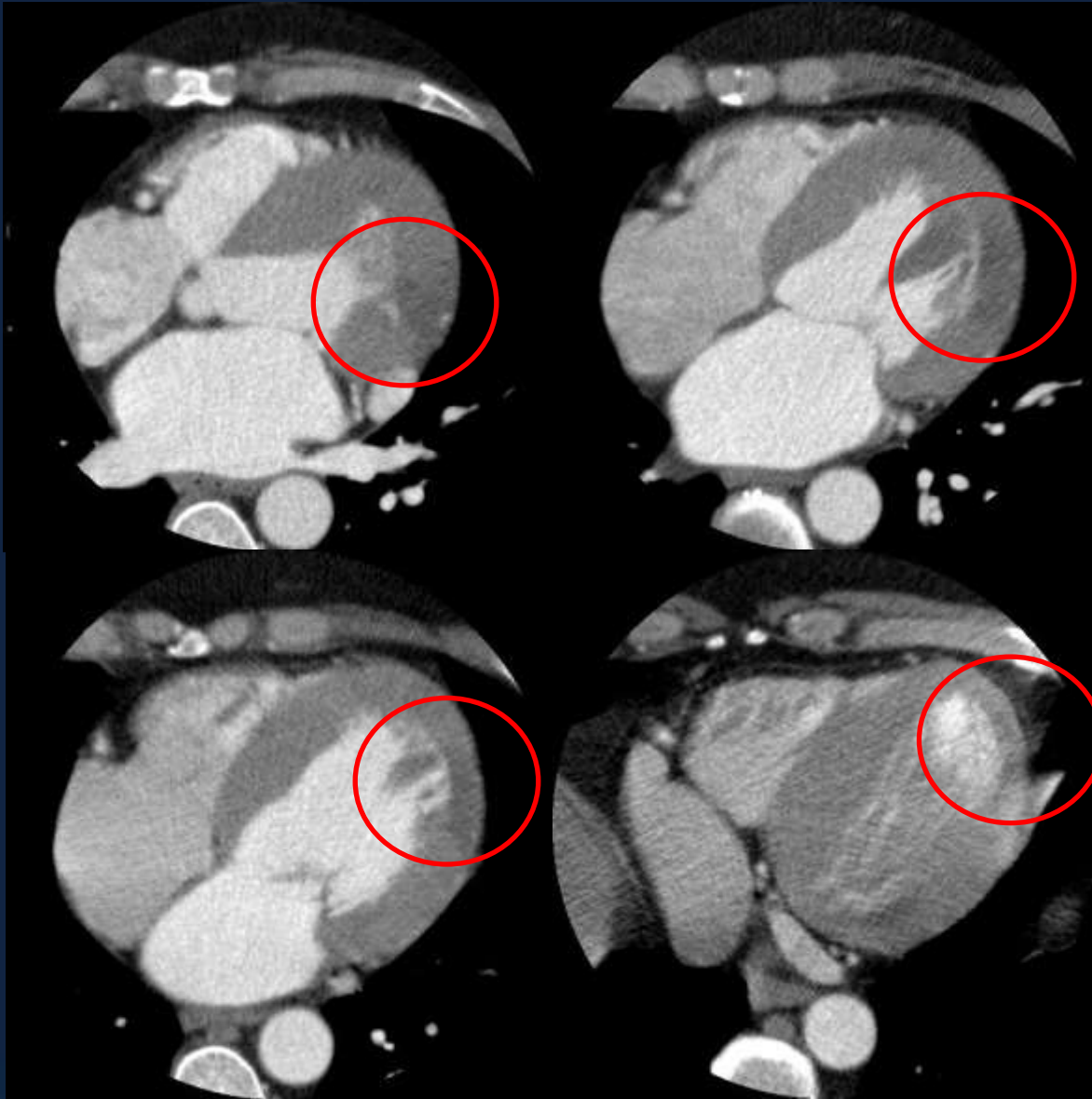
ECG showed no significant ST elevation and no confident change was obtained to diagnose him as myocardial infarction by laboratory data.

He was admitted our hospital for suspected heatstroke tentatively.

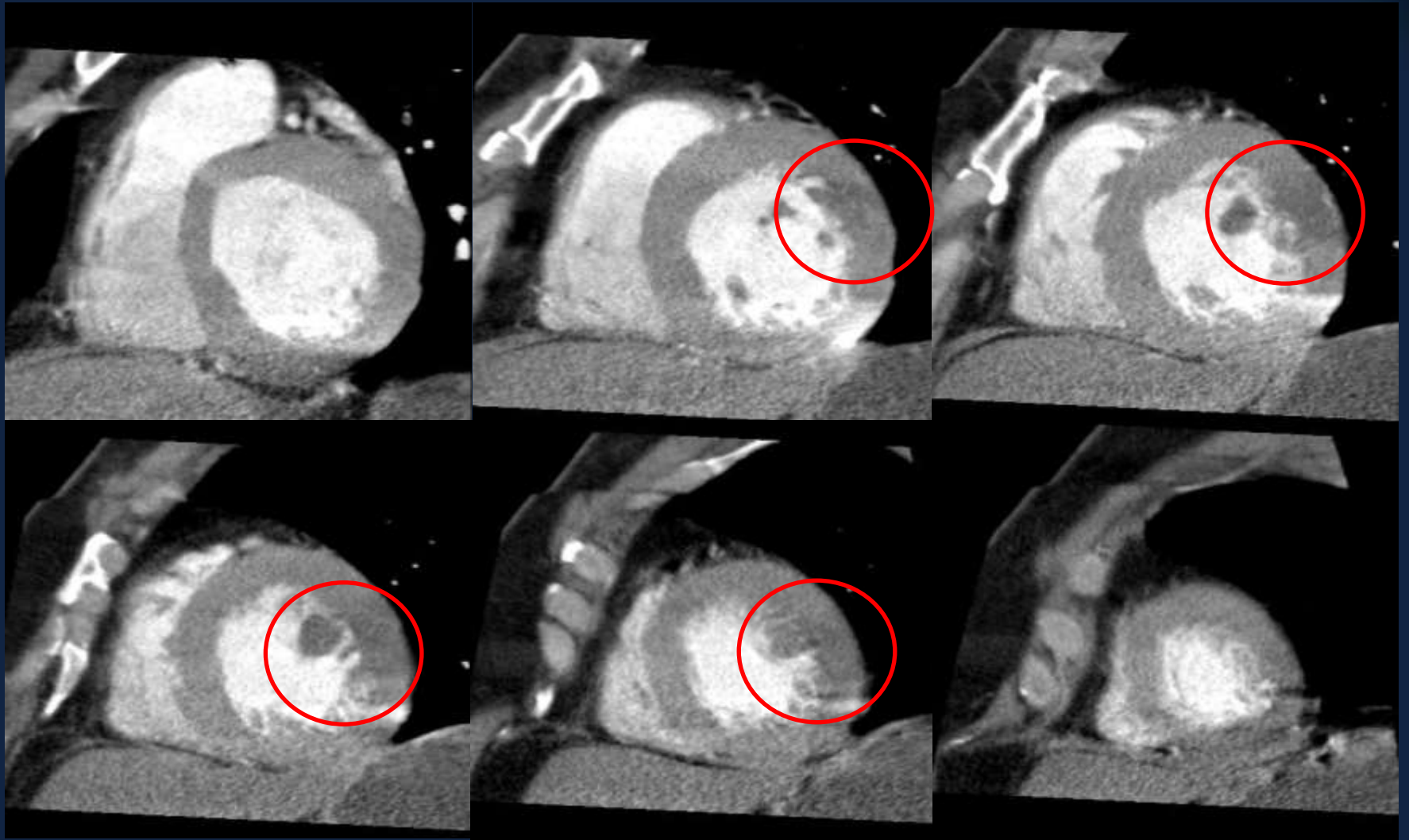
To rule out acute aortic dissection, contrast enhanced CT was performed.

CE-CT axial (early phase)

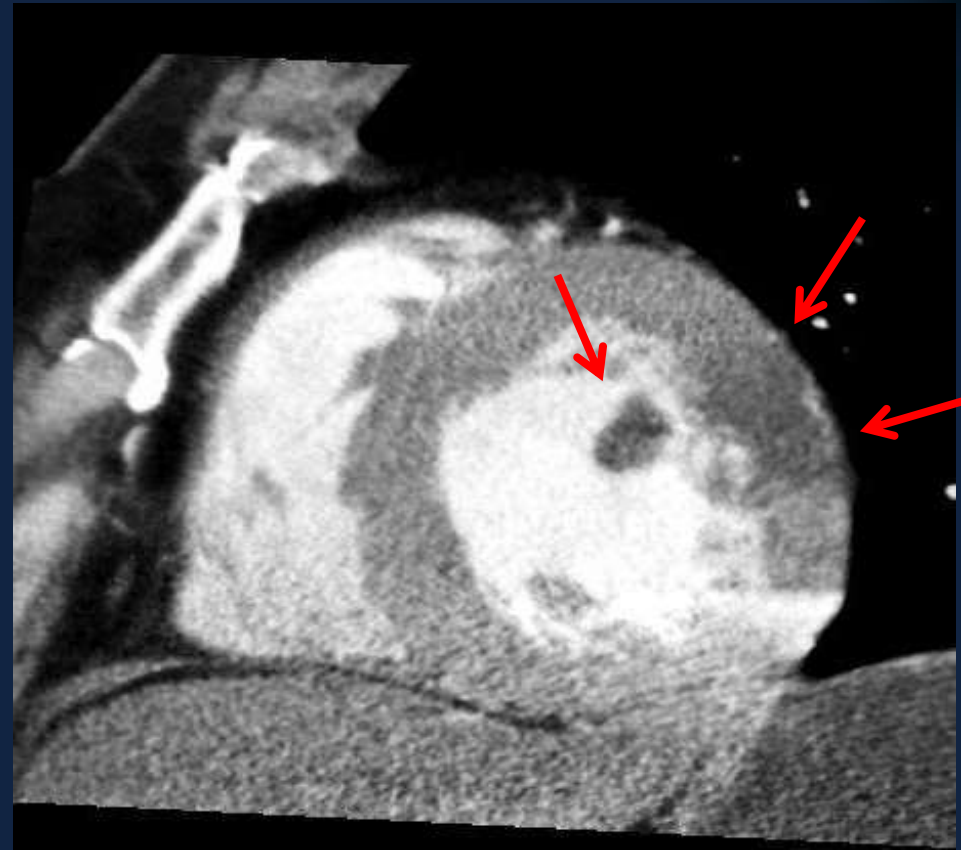
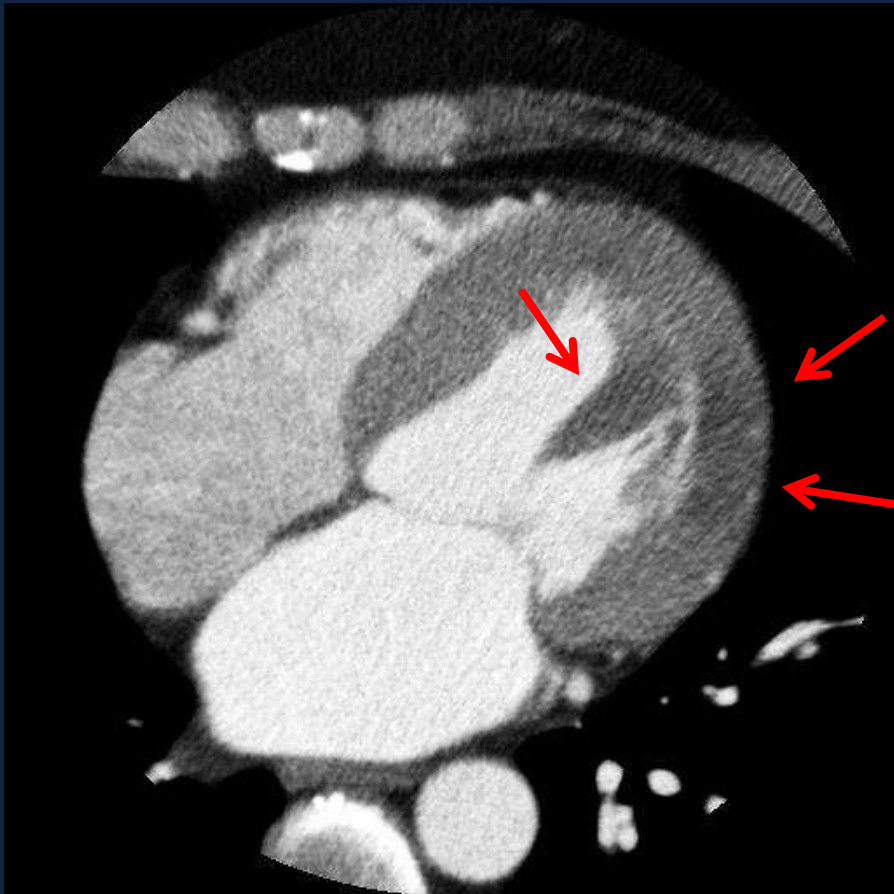




CE-CT axial
(early phase)



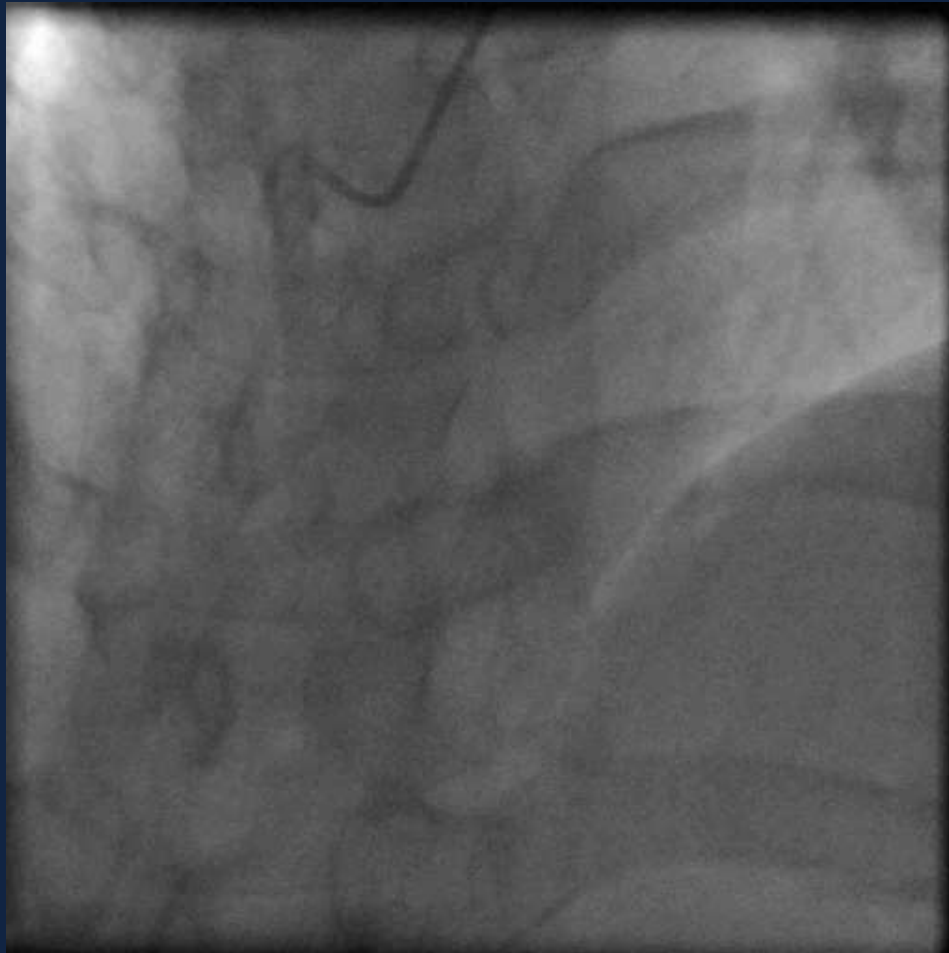
CE-CT short-axis



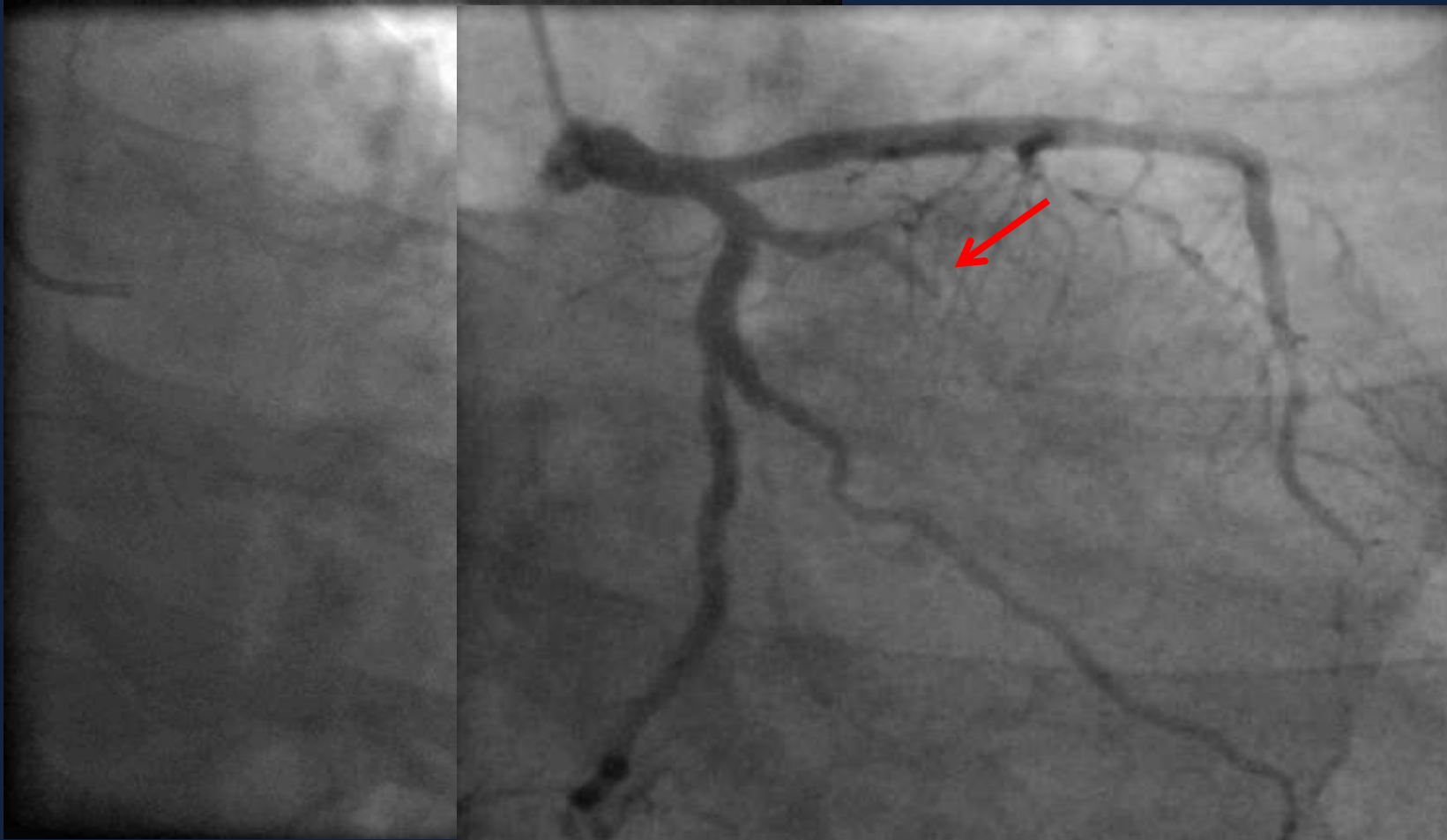
CE-CT showed myocardium early defects in lateral wall and anterior papillary muscle.

Thus, we decided to perform coronary angiography.

CAG

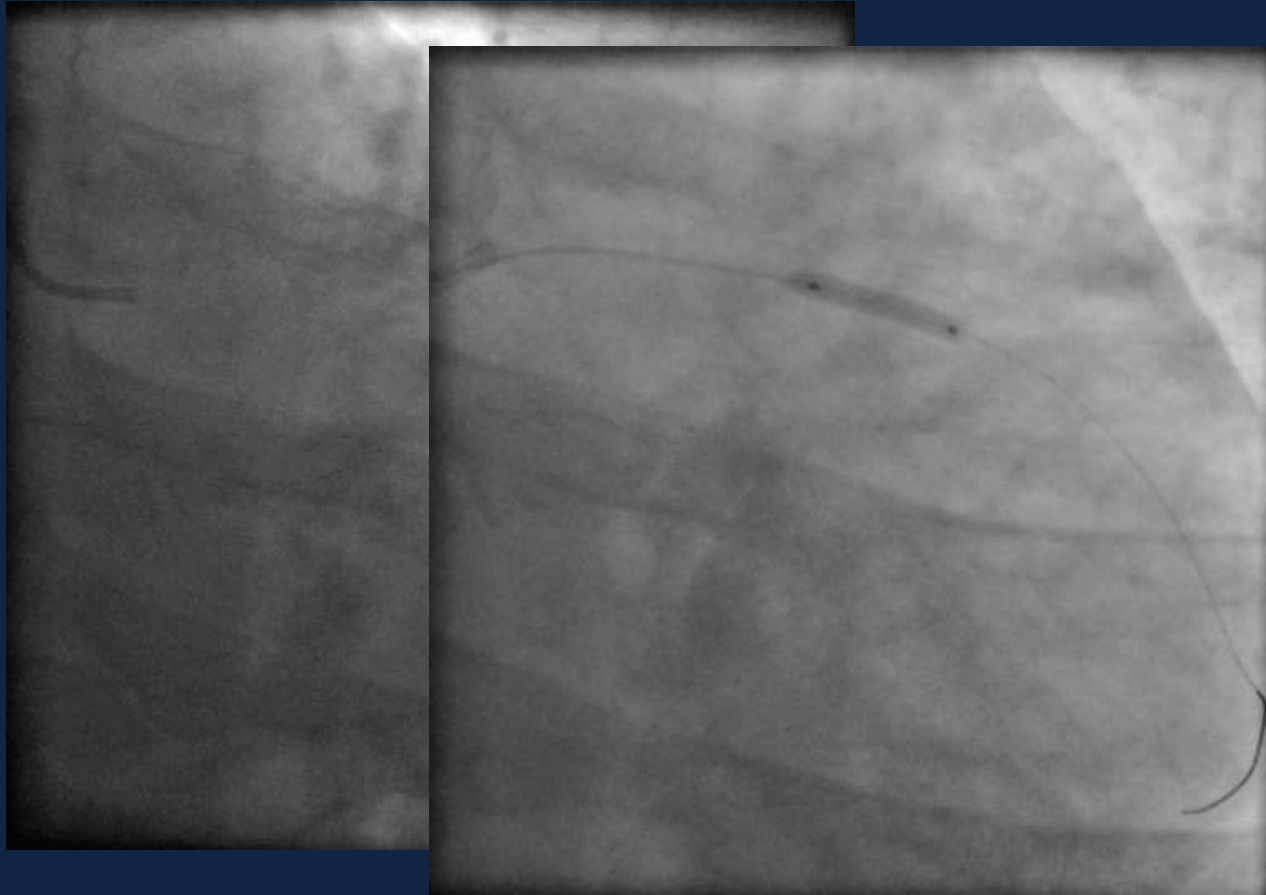


CAG



Middle of obtuse marginal branch was totally occluded.

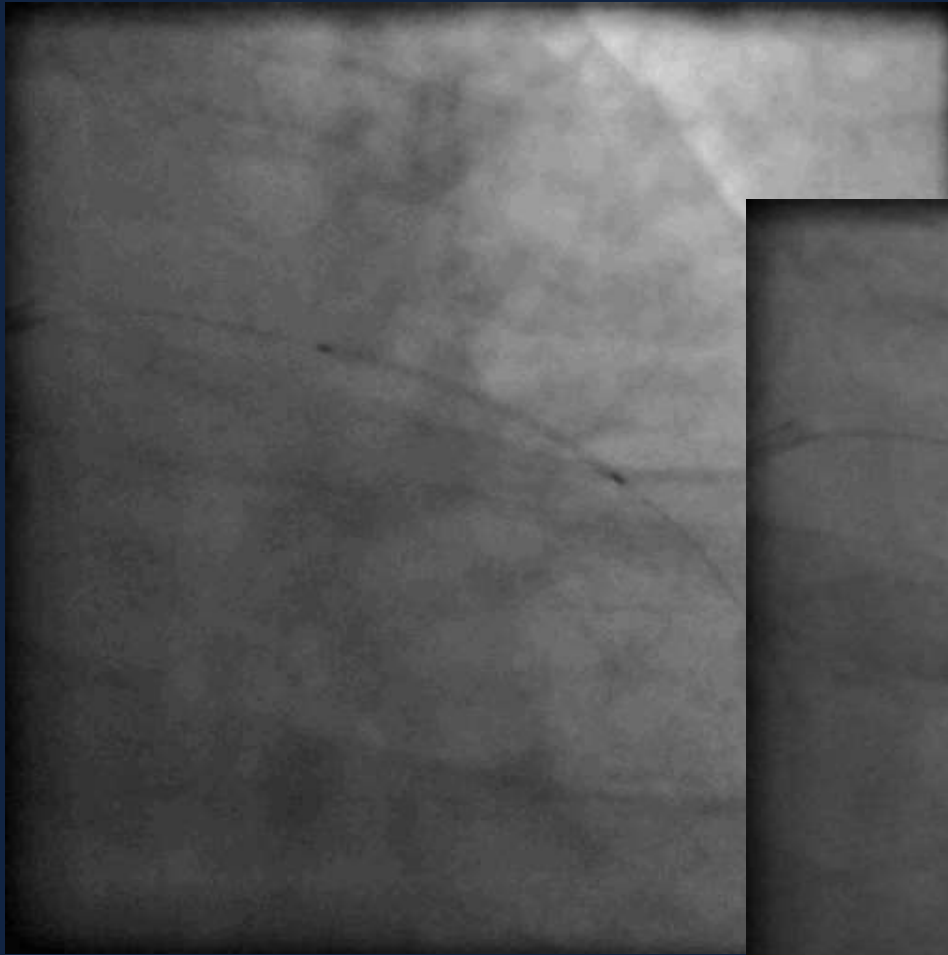
PCI



al approach
a 6Fr JL3.5 SH
ute

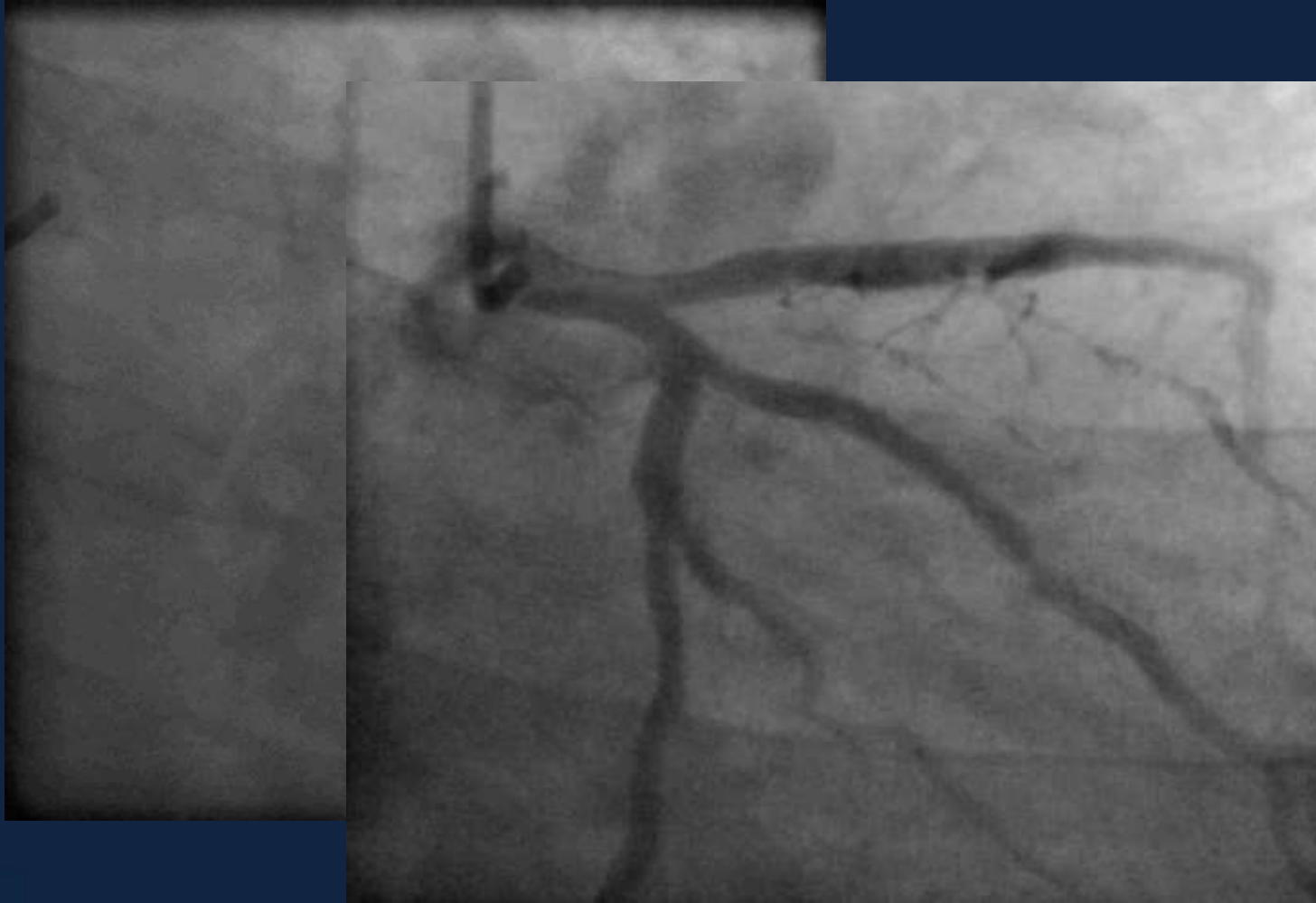
SAPHIRE II 2.5-15mm

PCI



Bare metal stent(Duraflex 3.5-25mm)

Final



TIMI3 flow was obtained.

Summary of the case

- 38 y.o. male was admitted with complaints of acute chest pain.
- His ECG and laboratory data were not shown the evidence of myocardial infarction.
- Early defects in lateral wall was detected in non ECG gated CE-CT.
- By the finding of early defect, the diagnosis of myocardial infarction became easier and more speedy.
- Furthermore, the finding indicated the site of culprit lesion.

Discussion

- It is difficult to diagnose NSTEMI on admission. Although CT angiography may be useful, it is not always possible in all hospitals.
- Early defects can be obtained by conventional non ECG gated CE-CT. Few case reports focused on early defects in ACS has been published.

Inter Med 48:1235-1238,2009

- Recently, it was reported that non-ECG gated CT had a high sensitivity and high negative predictive value for predicting AMI by detection of a localized decrease in left ventricular enhancement.

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- Early defects may help us to diagnose NSTEMI.

Take-home message

Early defects is an important finding of myocardial infarction in non ECG gated CE-CT.