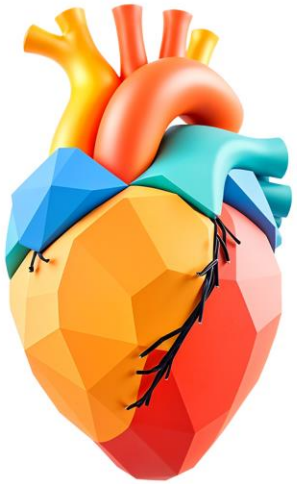

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12th Annual Tehran Heart Center Congress
7th CRITICAL CARDIOVASCULAR CARE
دوازدهمین کنگره سالیانه مرکز قلب تهران
2025
۲۵ و ۲۶ بهمن ماه ۱۴۰۳
13 & 14 February
Tehran Heart Center
Tehran, Iran

Unrecognized STEMI in ED

Mohammad Alidoosti
Professor of Interventional cardiology
Tehran university of Medical Sciences
Tehran Heart Center

jamshid abedi laforaki,
fellow of Interventional cardiology
Tehran Heart Center

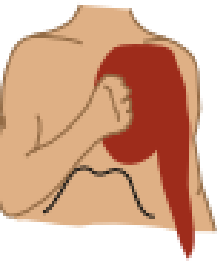
how can we improve outcomes in STEMI patients?

CVD is the leading cause of death in the world and also Iran

85% of CVD mortality is related to AMI and Stoke

Promp Dx of acute coronary occlusion and early repefusion has central role to reduce morbidity and mortality in STEMI patients

- Prehospital Care
- Hospital Care



Activate EMS

Patient symptom onset of STEMI

EMS dispatch

EMS on scene
Encourage 12-lead ECGs
Consider prehospital fibrinolytic if capable and EMS-to-needle time ≤30 min

EMS triage plan

Hospital arrival

STEMI confirmed 12-lead ECG (≤10 min)

Hospital fibrinolysis: Door-to-needle time ≤30 min

Not PCI capable

Interhospital transfer

PCI capable

Goals

Patient — 5 min after symptom onset

Dispatch — 1 min

EMS on scene — ≤8 min

EMS transport — EMS transport: EMS-device ≤90 min; Patient self-transport: hospital door–to-device ≤90 min

Total ischemic time: <120 min

Not PCI capable

If anticipated FMC-to-device time >120 min (class I)

Fibrinolysis

Clinical course/noninvasive risk stratification

Rescue (class IIa)

Routine invasive (3-24 hr) (class IIa)

Ischemia driven (class I)

Late hospital care and secondary prevention

Transferred for PCI or CABG

If anticipated FMC-device ≤120 min (class I)

PCI capable

Initially seen at PCI-capable hospital (class I)

Primary PCI

TIME is MUSCLE

The “chain of survival” for STEMI is a highly integrated strategy beginning with patient education about the symptoms of MI,

early contact with the medical system, EMS ,

efficient practices in EDs to shorten door-to- reperfusion time,

And timely implementation of the reperfusion strategy by a trained team.

Patient-related factors associated with longer delays in seeking medical attention:

older age;

female sex;

black race;

low socioeconomic

uninsured status

Opium

history of angina

diabetes

consulting a spouse or other relative

consulting a physician

Management in the emergency department:

Primary percutaneous coronary intervention (PPCI) is the gold standard treatment for STEMI.

RCTs have shown that if the delay to treatment is similar, PPCI is superior to fibrinolysis in reducing mortality, non-fatal re-MI and stroke.

Interventions to Improve Door- to- Device Times

1. A prehospital ECG for diagnosing STEMI is used to activate the PCI team while the patient is en route to the hospital.
2. Emergency physicians activate the PCI team.
3. A single call to a central page operator activates the PCI team.
4. A goal is set for the PCI team to arrive at the catheterization laboratory within 20 min after being paged.
5. Timely data feedback and analysis are provided to members of the STEMI care team.

ECG		
Twelve-lead ECG recording and interpretation is recommended as soon as possible at the point of FMC, with a target of <10 min.[5,19]	I	B
Continuous ECG monitoring and the availability of defibrillator capacity is recommended as soon as possible in all patients with suspected STEMI, in suspected ACS with other ECG changes or ongoing chest pain, and once the diagnosis of MI is made.[20,21]	I	B
The use of additional ECG leads (V3R, V4R, and V7–V9) is recommended in cases of inferior STEMI or if total vessel occlusion is suspected and standard leads are inconclusive.[22–24]	I	B
An additional 12-lead ECG is recommended in cases with recurrent symptoms or diagnostic uncertainty.	I	C

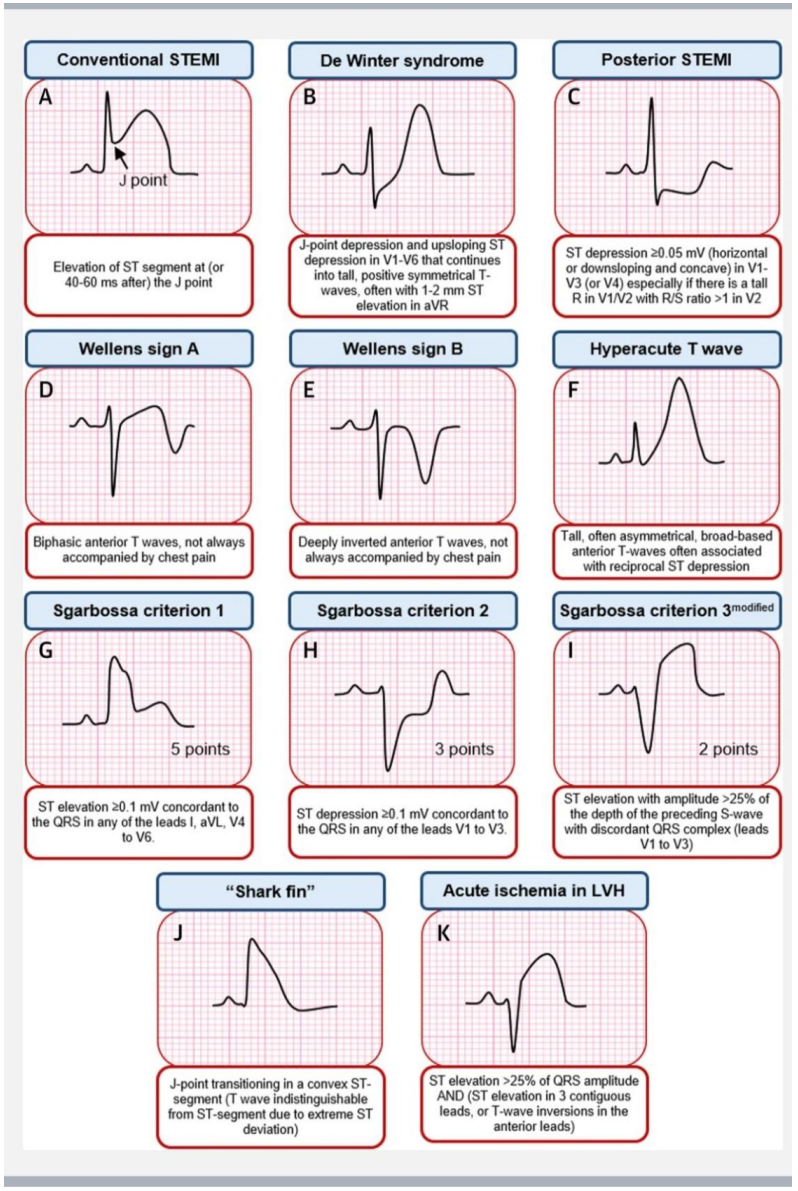
Electrocardiographic Manifestations of Myocardial infarction:

Electrocardiographic Manifestations of Acute Myocardial Ischemia (in the Absence of Left Bundle Branch Block)	
ST Elevation	

New ST elevation at the J point in two contiguous leads with the following cut points:
• ≥0.1 mV in all leads (except V_2–V_3)
• In leads V_2–V_3 the following cut points apply:
  • ≥0.2 mV in men ≥40 years
  • ≥0.25 mV in men <40 years
  • ≥0.15 mV in women	

ST Depression and T Wave Changes	
• New horizontal or downsloping ST depression ≥0.05 mV in two contiguous leads • T wave inversion ≥0.1 mV in two contiguous leads with a prominent R wave or R/S ratio >1	
Electrocardiographic Manifestations of Ischemia in the Setting of Left Bundle Branch Block	
Electrocardiographic Criterion	***Points***
ST-segment elevation ≥1 mm and concordant with the QRS complex	5
ST-segment depression ≥1 mm in lead V_1, V_2, or V_3	3
ST-segment elevation ≥5 mm and discordant with the QRS complex	2
A score of ≥3 had a specificity of 98% for acute MI	

In practice, however, the full spectrum of ECG abnormalities indicating acute coronary ischemia or occlusion requiring immediate cardiac cath go beyond the ST-segment elevation pattern



Common misdiagnosis of STEMI in emergency room :

Opium addiction

Reduced chest pain

LBBB or pace rhythm

Posterior MI

Minimal ST-T Changes

Some degree of recanalization

Recommendations for reperfusion therapy for patients with STEMI		
Reperfusion therapy is recommended in all patients with a working diagnosis of STEMI (persistent ST-segment elevation or equivalents[C]) and symptoms of ischaemia of ≤12 h duration.[51,182]	I	A
A PPCI strategy is recommended over fibrinolysis if the anticipated time from diagnosis to PCI is <120 min.[52,218,219]	I	A
If timely PPCI (<120 min) cannot be performed in patients with a working diagnosis of STEMI, fibrinolytic therapy is recommended within 12 h of symptom onset in patients without contraindications.[176,183]	I	A

In patients with a working diagnosis of STEMI and a time from symptom onset >12 h, a PPCI strategy is recommended in the presence of ongoing symptoms suggestive of ischaemia, haemodynamic instability, or life-threatening arrhythmias.[220]	I	C
A routine PPCI strategy should be considered in STEMI patients presenting late (12–48 h) after symptom onset.[189–191,221]	IIa	B
Routine PCI of an occluded IRA is not recommended in STEMI patients presenting >48 h after symptom onset and without persistent symptoms.[189,192,193]	III	A

Kardiologia POLSKA

ONLINE FIRST

This is a provisional PDF only. Copyedited and fully formated version will be made available soon.

The impact of a dedicated coronavirus disease 2019 primary angioplasty protocol on time components related to ST-segment elevation myocardial infarction management in a 24/7 primary percutaneous coronary intervention–capable hospital

Authors: Mojtaba Salarifar, Mojgan Ghavami, Hamidreza Poorhosseini, Farzad Masoudkabir, Yaser Jenab, Alireza Amirzadegan, Mohammad Alidoosti, Hassan Aghajani, Ali Bozorgi, Kaveh Hosseini, Masoumeh Lotfi-Tokaldany, Seyedeh Hamideh Mortazavi, Afsaneh Aein, Tahere Ahmadian, Saeed Sadeghian

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According to recent manuscript in the Covid period in THC, STEMI diagnosis to wire crossing: **49 min**

گزارش پایش برنامه مدیریت سکته حاد قلبی (کد ۲۴۷)

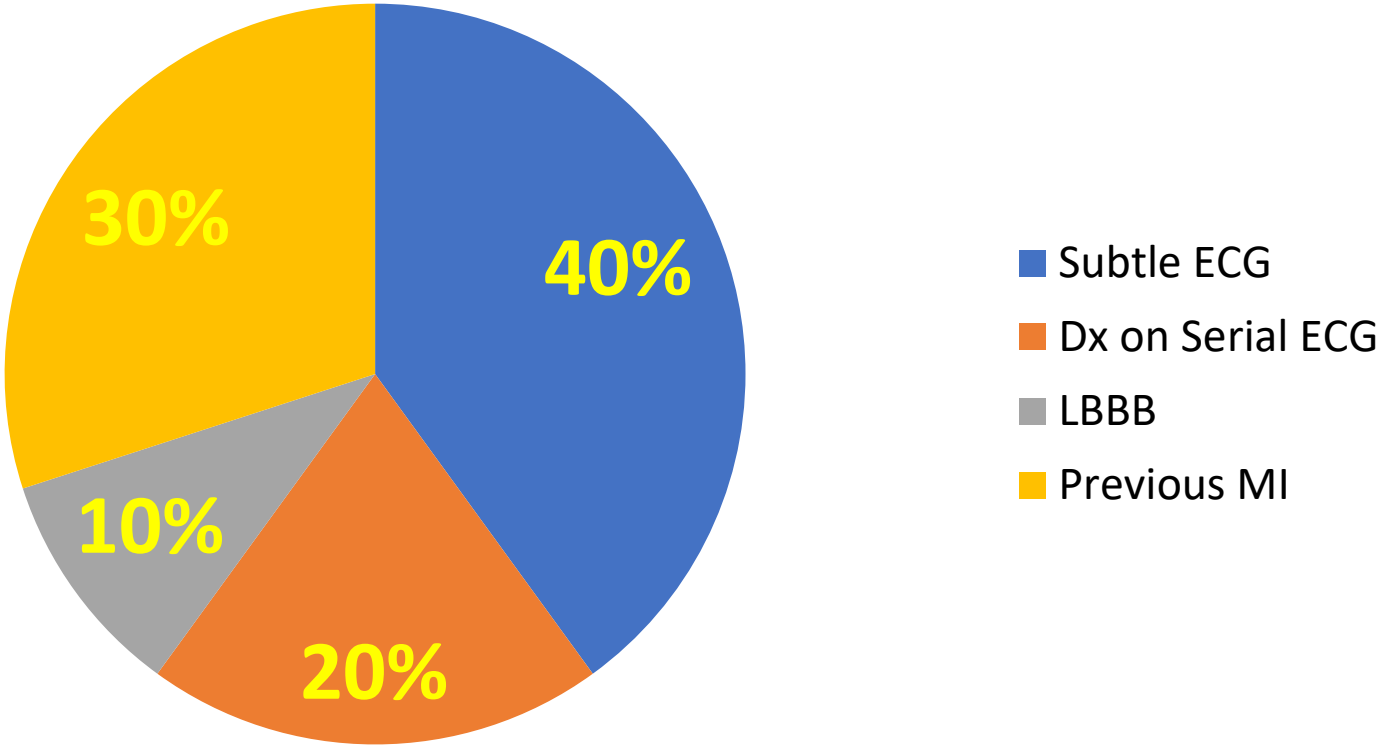
مربوط به ماه: —

ردیف	نام بیمار	سن	جنس: مرد	جنس: زن	شماره پرونده	تاریخ	ساعت شروع درد	ساعت ورود به بیمارستان	ساعت اولین ECG در بیمارستان	STEMI ECG	ساعت تشخیص قطعی پزشک	زمان اعلام کد	زمان ورود به کت لب	Devise time	فاصله زمانی بین اعلام کد تا D.t (دقیقه)	فاصله زمانی بین ورود به بیمارستان تا D.t (دقیقه)
۱۸		۸۵	*		۲۵-۴۹-۱۰	۰۷/۰۶	۱۴	۱۶:۴۱	۱۶:۳۹	۱۶:۳۹	۱۶:۴۰	۱۶:۵۰	۱۸:۱۵	۱۸:۴۰	۱۱۰	۱۱۹
علت تاخیر: حضور بیمار دیگری در کت لب بوده است.																
۱۹		۴۱	*		۷۹-۱۹-۲۱	۰۷/۰۶	۱۴ ۰۷/۰۵	۱۹:۵۷	۱۹:۵۵	۱۹:۵۵	۱۹:۵۵	۲۰:۰۵	۲۰:۱۵	۲۰:۲۵	۲۰	۲۸
۲۰		۴۸	*		۸۱-۲۸-۲۱	۰۷/۰۶	۹:۱۵	۱۵:۰۷	۱۵:۰۵	۱۵:۰۵	۱۵:۱۰	۱۵:۱۰	۱۵:۲۵	۱۵:۳۵	۲۵	۲۸
۲۱		۴۸		*	۱۸-۵۴-۱۸	۰۷/۰۷	۱۵	۱۷:۲۵	۱۷:۲۴	۱۷:۲۴	۱۷:۲۴	۱۷:۴۰	۱۷:۵۰	۱۸:۱۵	۳۵	۵۰
۲۲		۴۹	*		۹۰-۲۸-۲۱	۰۷/۰۸	۲۱ ۰۷/۰۷	۱:۰۹	۱:۰۸	۱:۰۸	۱:۰۸	۱:۲۶	۱:۳۰	۱:۴۰	۱۴	۳۱
۲۳		۷۰	*		۹۸-۲۸-۲۱	۰۷/۰۸	۱۹	۱۹:۵۸	۱۹:۵۶	۱۹:۵۶	۱۹:۵۸	۲۰:۰۶	۲۰:۲۰	۲۰:۳۰	۲۴	۳۲
۲۴		۵۳	*		۲۶-۶۷-۱۷	۰۷/۰۹	۳	۴:۰۲	۳:۵۸	۳:۵۸	۴	۴:۰۴	۴:۲۰	۴:۳۰	۲۶	۲۸
۲۵		۳۹	*		۷۰-۳۰-۲۱	۰۷/۱۰	۱۸ ۰۷/۰۹	۱۴:۱۴	۱۴:۱۳	۱۴:۱۳	۱۴:۱۳	۱۴:۲۰	۱۴:۲۵	۱۴:۴۰	۲۰	۲۶
۲۶		۵۶	*		۷۸-۳۰-۲۱	۰۷/۱۰	۶	۹:۱۱	۹:۰۸	۱۴:۴۲	۱۴:۴۲	۱۴:۵۰	۱۵	۱۵:۳۰	۴۰	۳۸۲
۲۷		۵۰	*		۱۵-۳۰-۲۱	۰۷/۱۱	۲:۳۰	۳:۳۷	۳:۴۰	۳:۴۰	۳:۴۰	۳:۴۰	۳:۴۳	۳:۵۵	۱۵	۱۸
۲۸		۴۸	*		۱۷-۳۰-۲۱	۰۷/۱۱	۸	۰۰:۵۲	۰۰:۵۱	۰۰:۵۱	۰۰:۵۱	۱:۰۵	۱:۲۰	۱:۳۵	۳۰	۴۳
۲۹		۵۳	*		۳۱-۳۰-۲۱	۰۷/۱۲	۱۸	۱۸:۱۹	۱۸:۱۶	۱۸:۱۶	۱۸:۱۶	۱۸:۳۱	۱۸:۴۷	۱۹:۰۵	۳۴	۴۶
۳۰		۸۲		*	۳۲-۳۰-۲۱	۰۷/۱۲	۱۲	۲۰:۲۸	۲۰:۲۸	۲۰:۲۸	۲۰:۲۸	۲۰:۲۸	۲۰:۴۰	۲۱	۳۲	۳۲
۳۱		۵۲	*		۵۰-۱۰-۲۱	۰۷/۱۱	۱۱	۱۴:۱۱	۱۴:۱۱	۱۴:۱۱	۱۴:۱۱	۱۴:۲۰	۱۴:۳۵	۱۴:۴۵	۲۵	۳۲

STEMI patients referred to THC Hospital last year

All of patient with STEMI (247)	PPCI	Delay to Dx STEMI>90 min	Patient in the cathlab at the same time	overdiagnosis
1258	960	38	52	37
	76%	3%	4%	3%

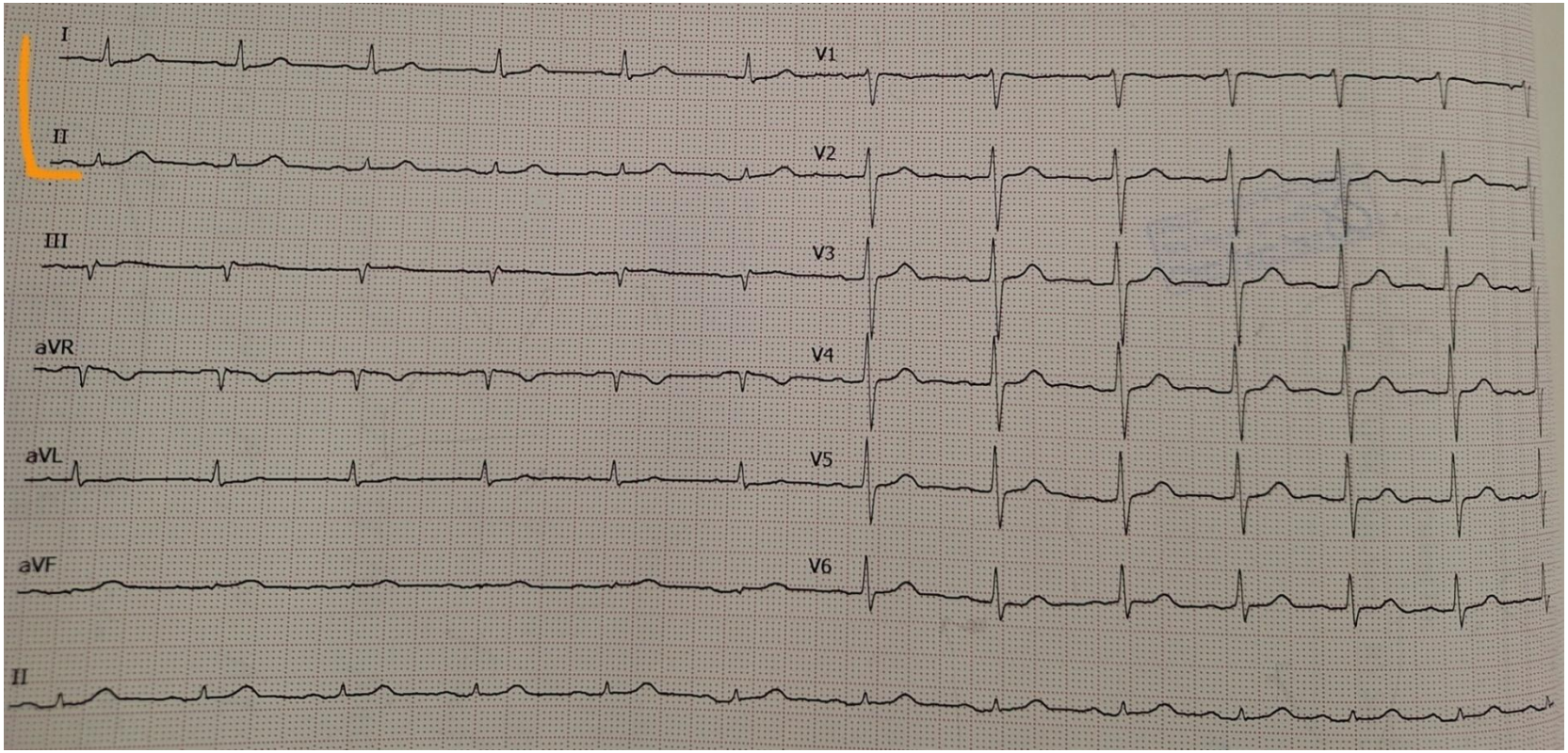
Delay to Dx STEMI>90 min:

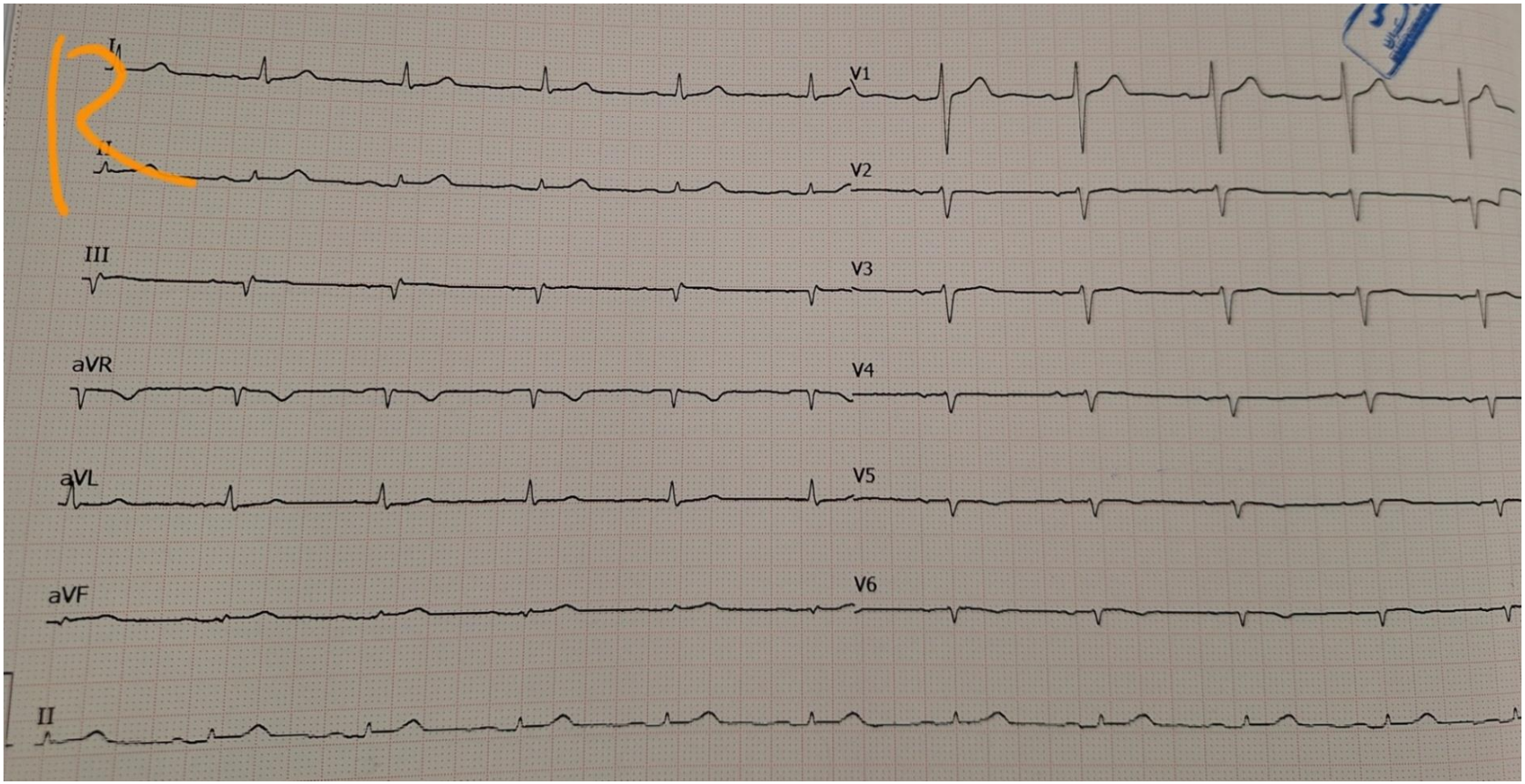


Subtle ECG in emergency department
(MISDIAGNOSIS IN STEMI)

And What do you think about the infarct related artery?

A 63-year-old man with a history of DM, HTN, IHD (2 years ago,CAG:2VD & PCI on LAD & RCA) presented with TCP for the past 6 hours




I
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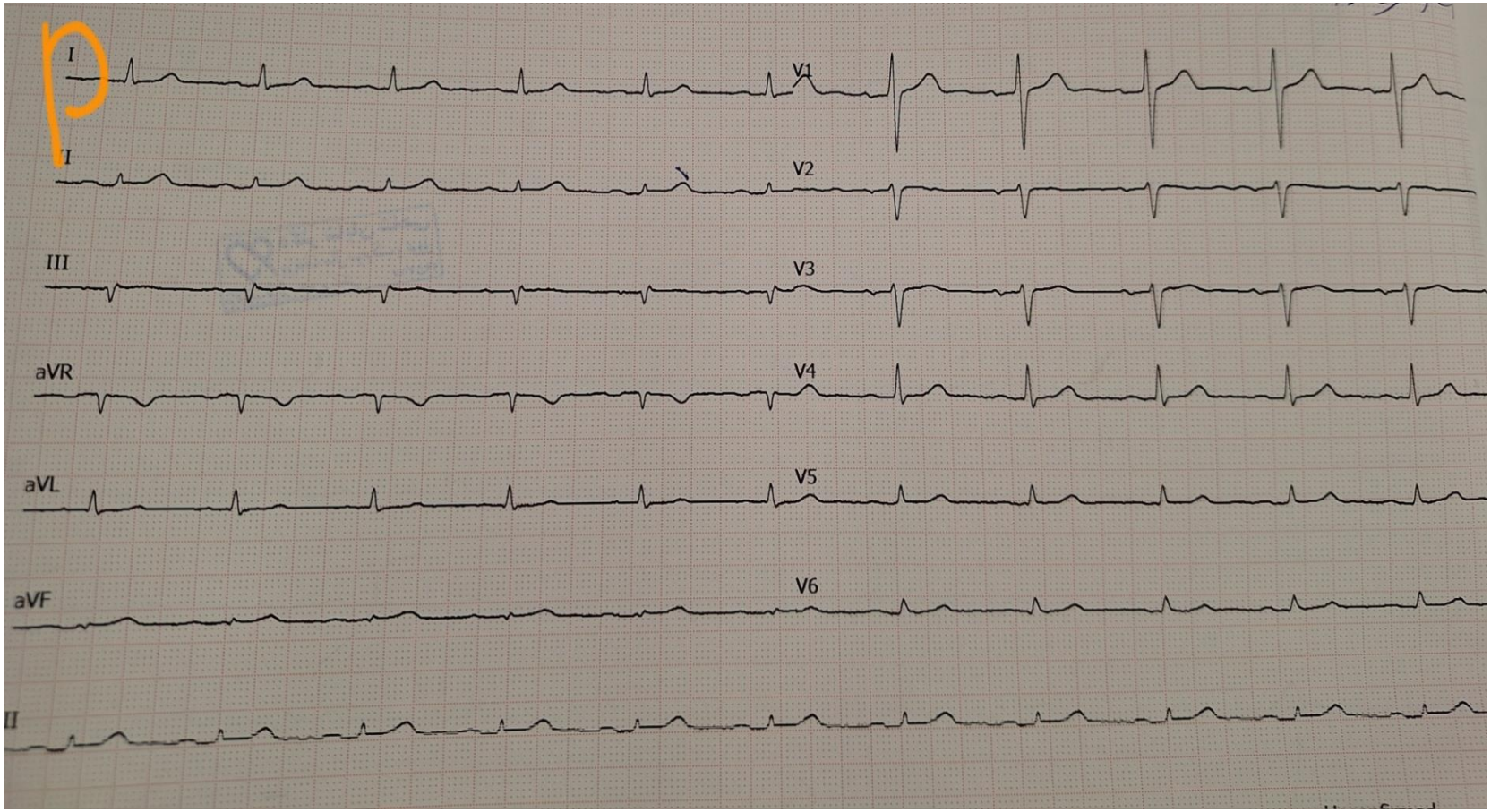
V4
V5
V6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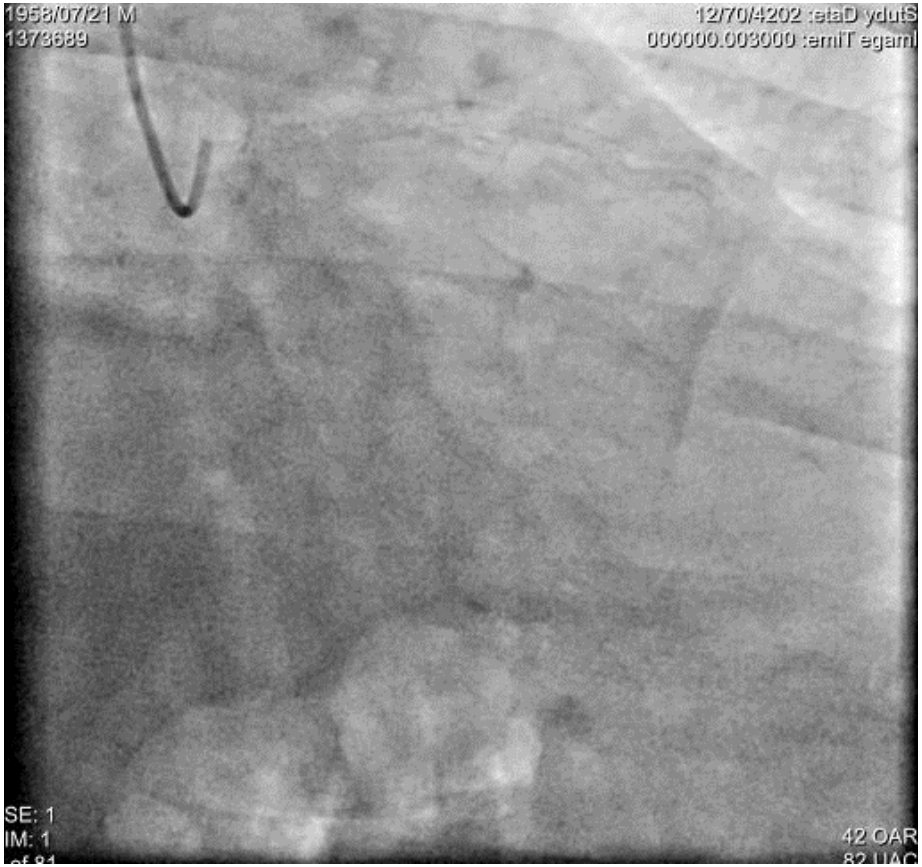
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IM: 1
42 OAR


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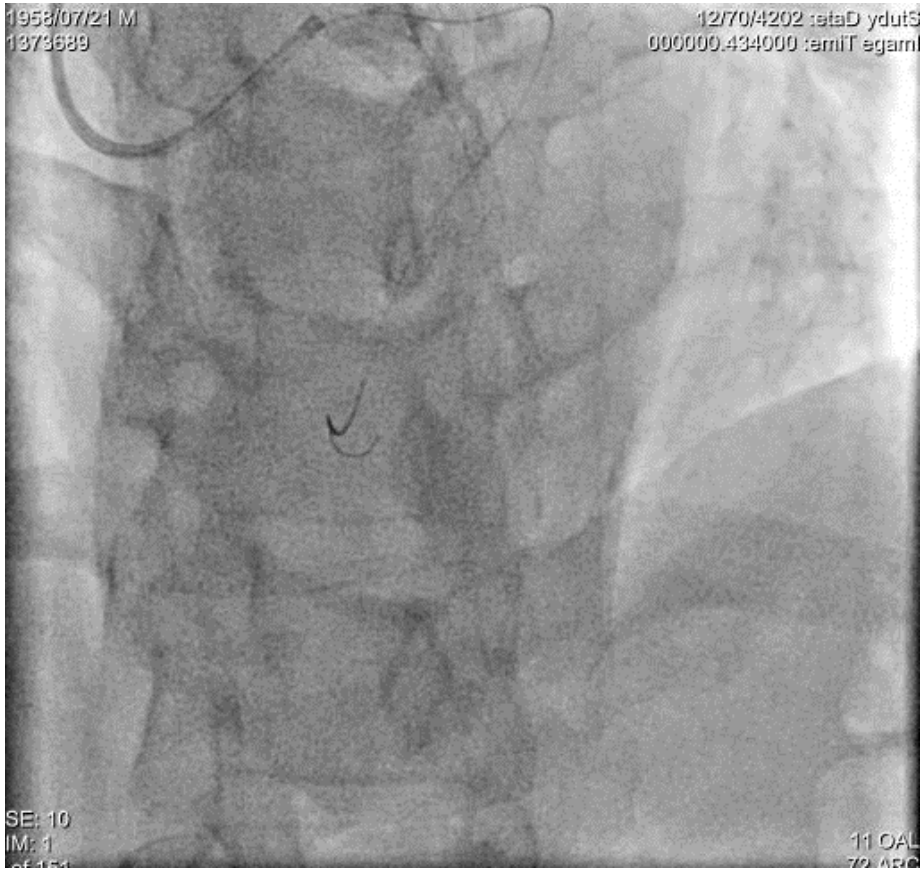
52 OAL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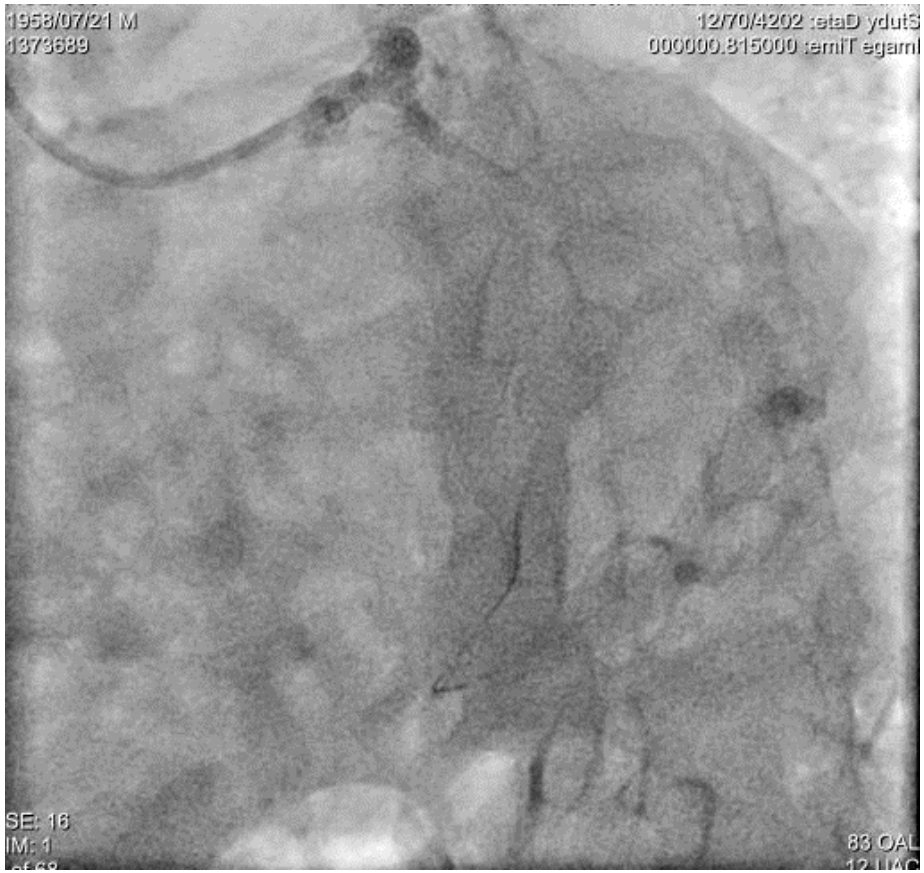
1958/07/21 M
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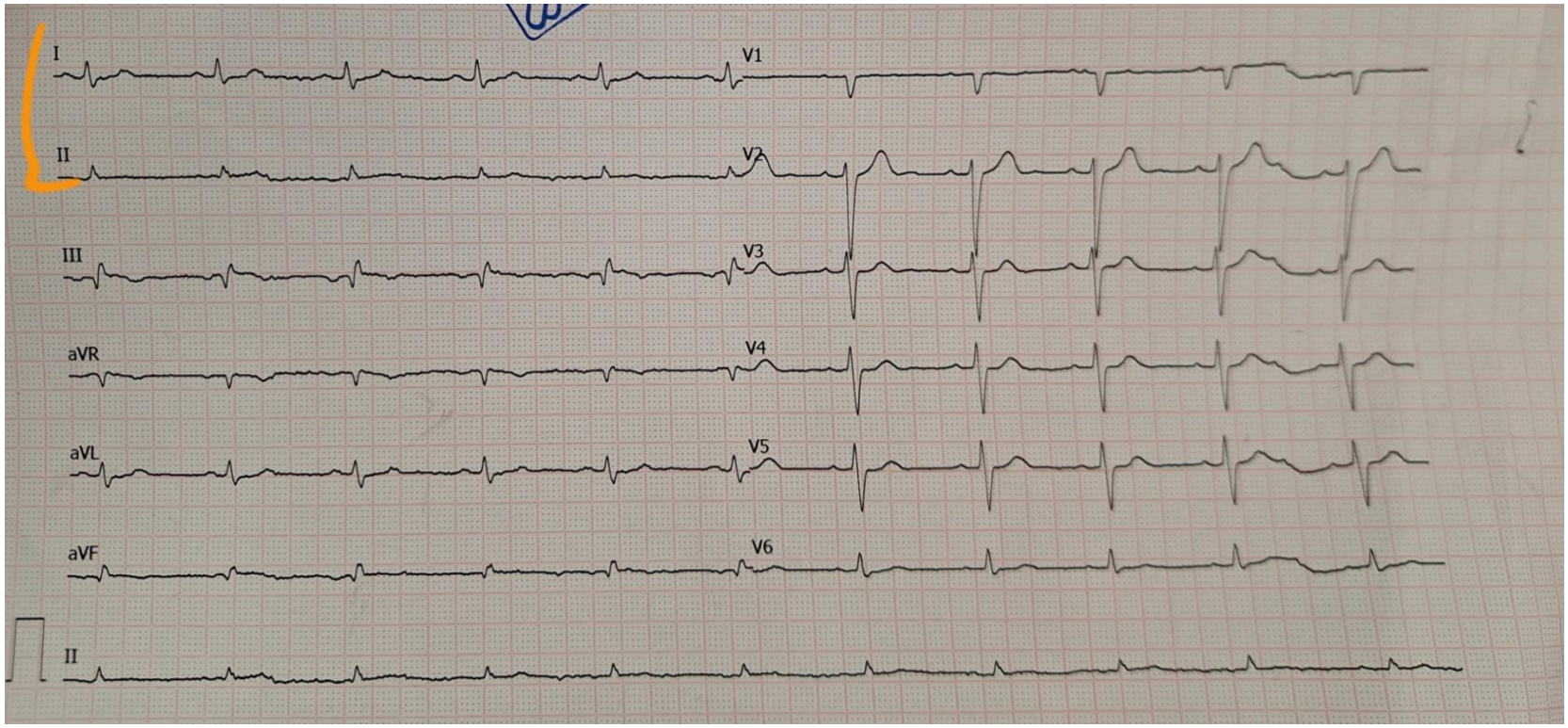
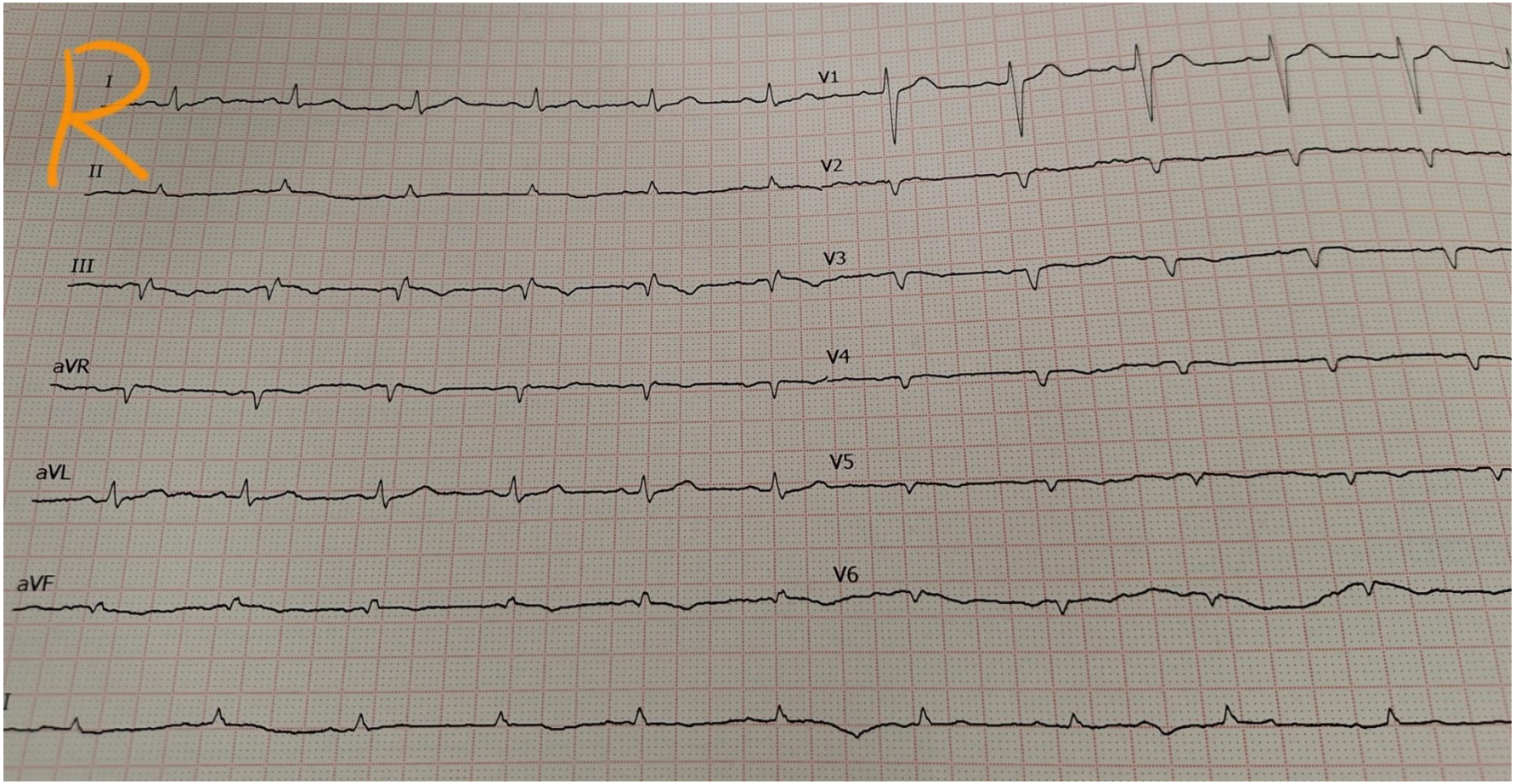
SE: 16
IM: 1

A 41-year-old man smoker, presented to the ER with chest pain for 10 hours.

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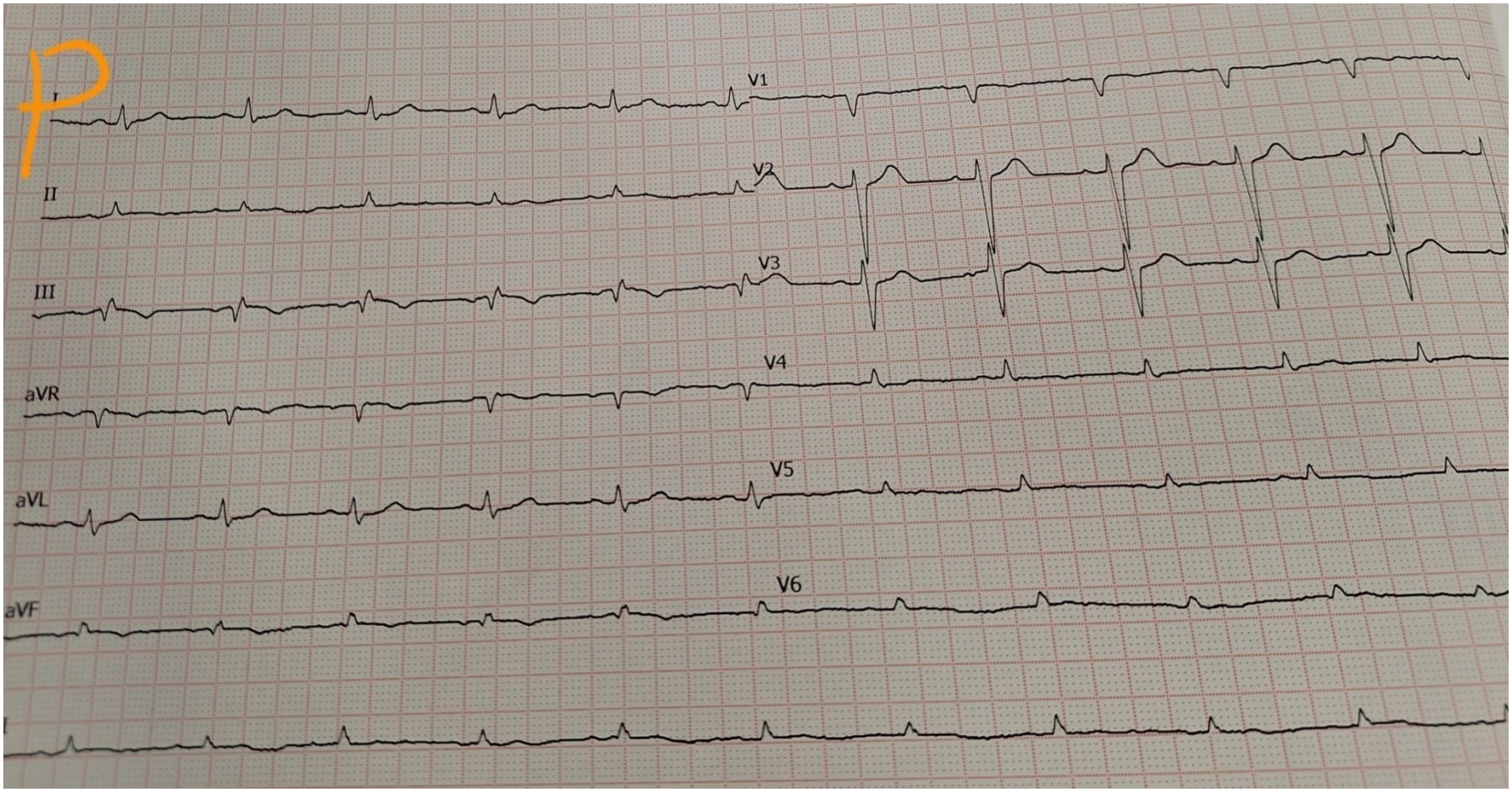
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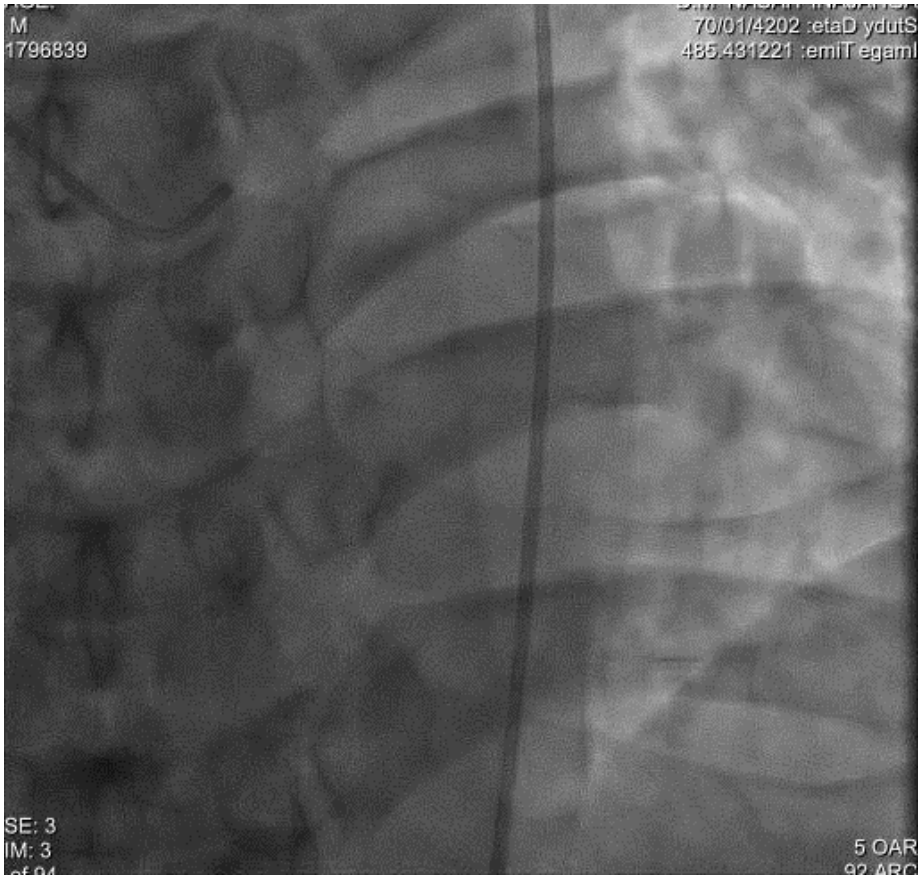
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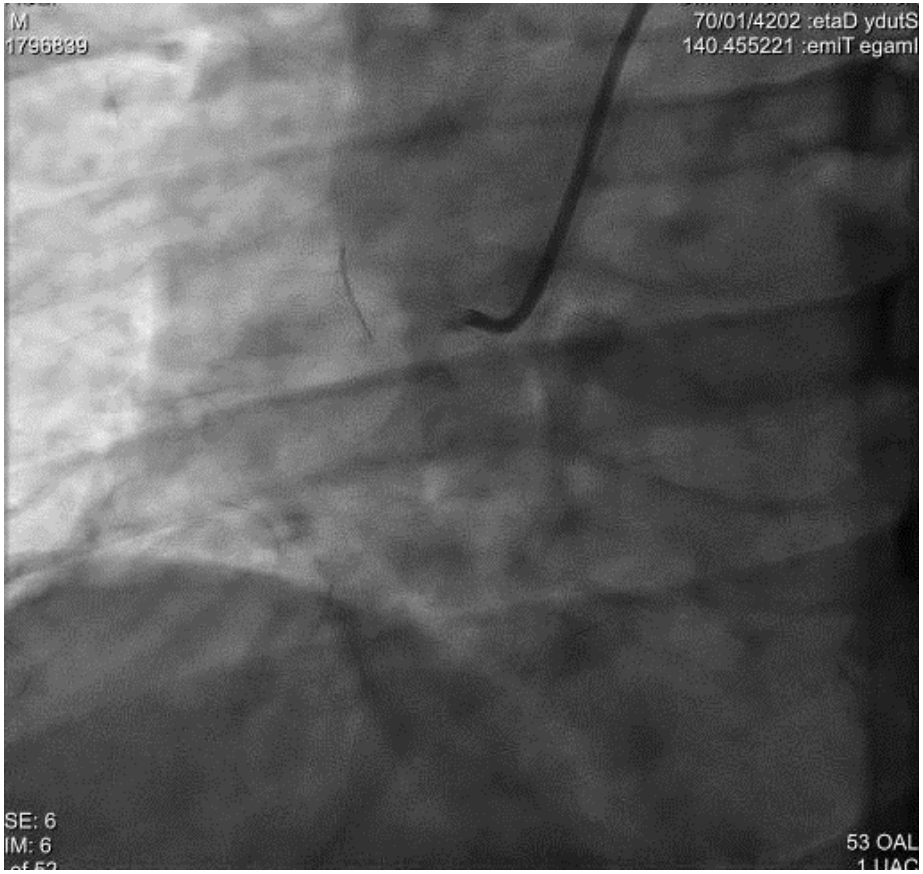
5 OAR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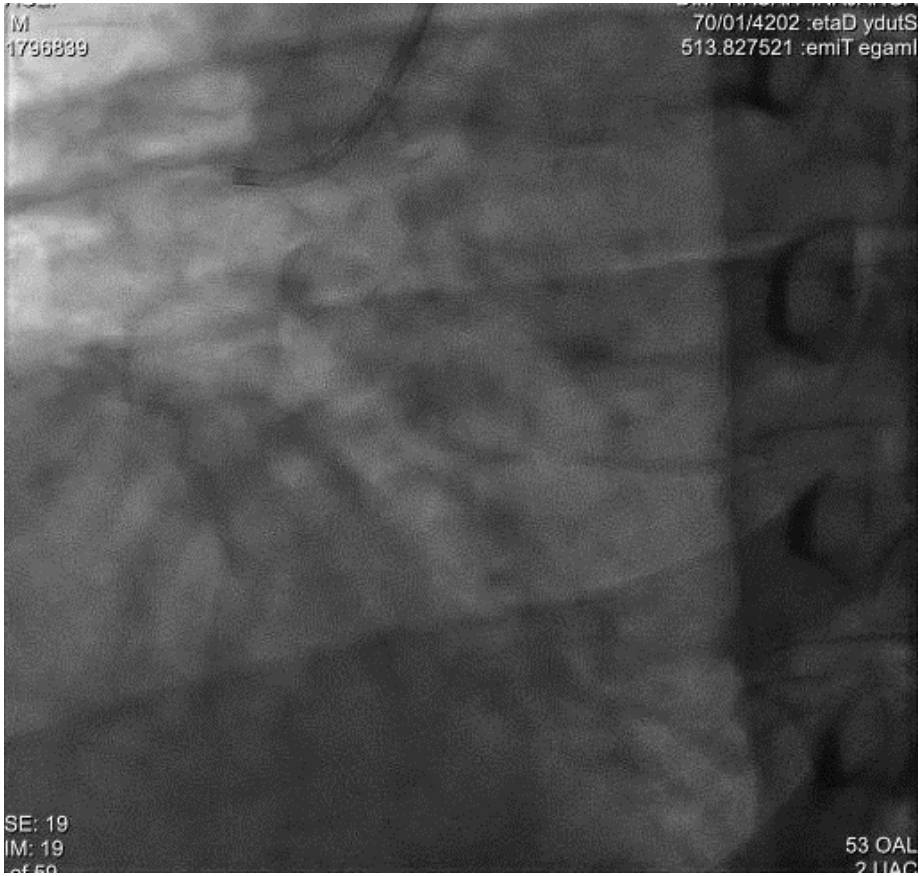
53 OAL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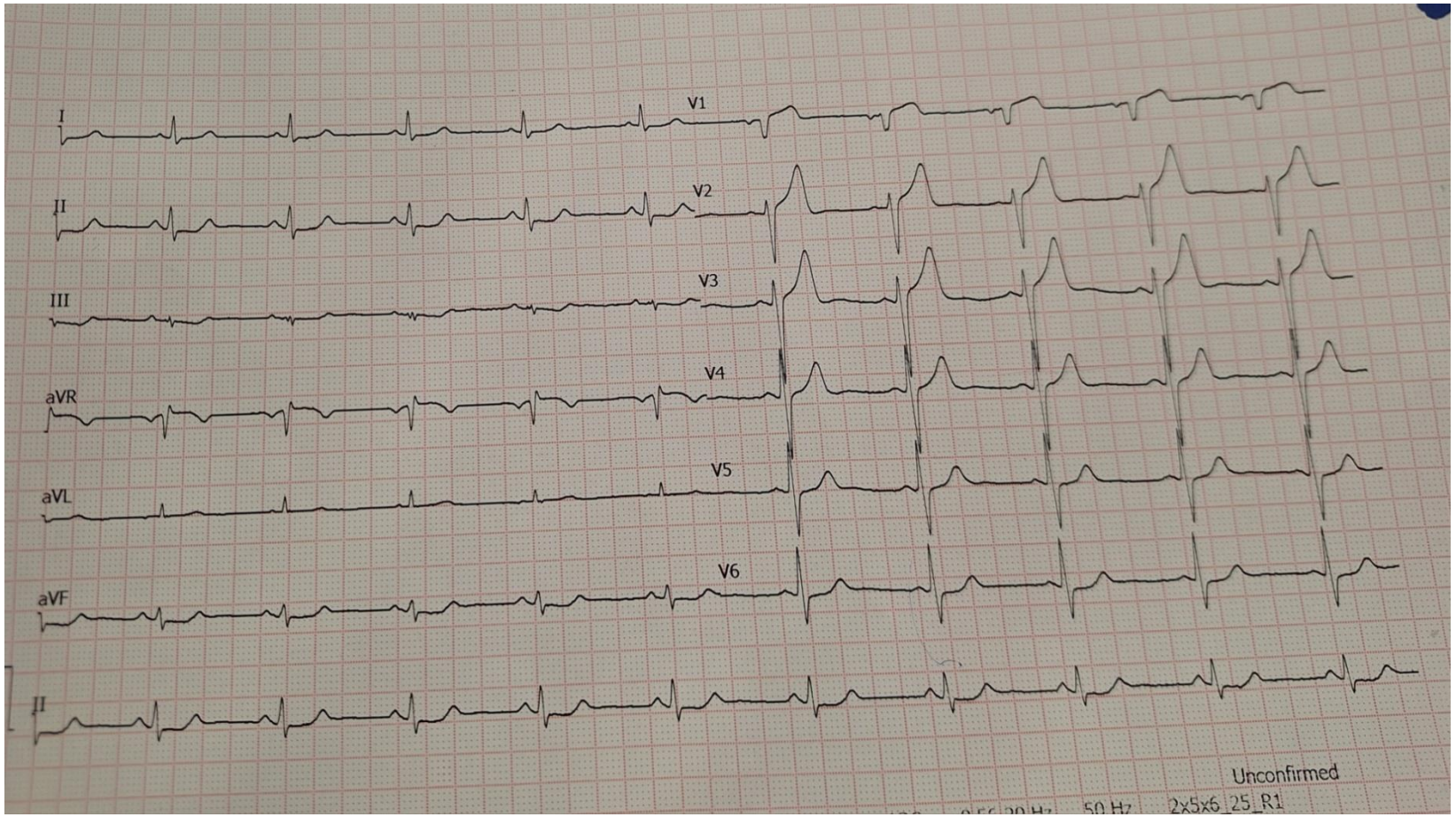
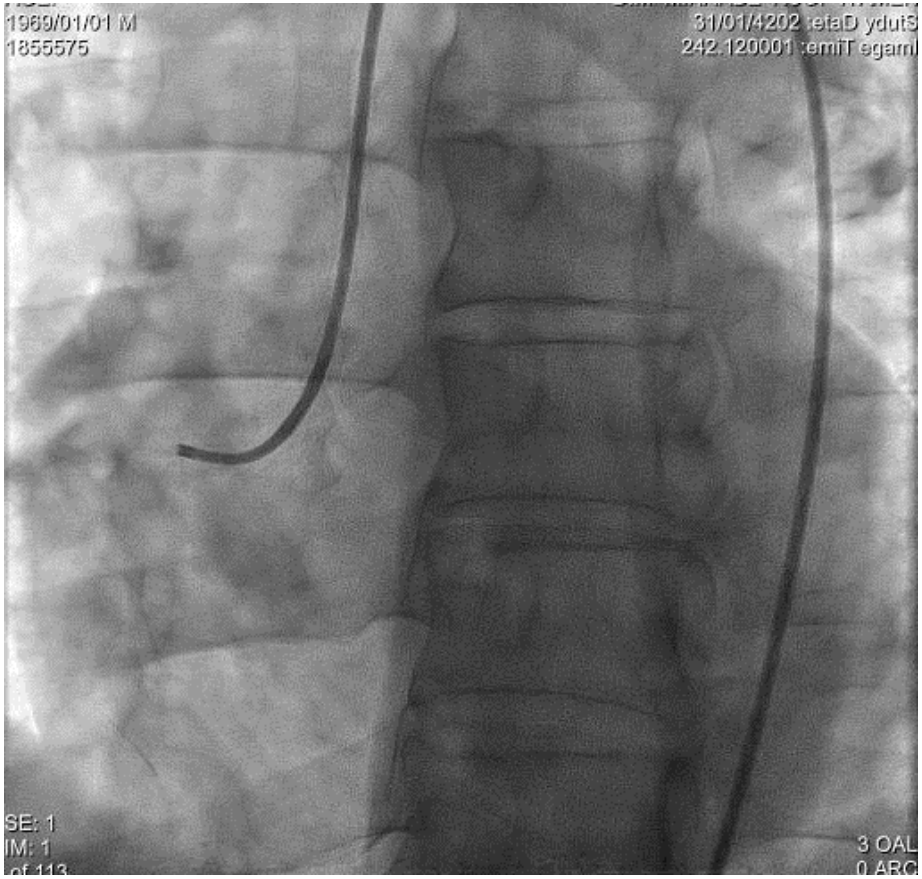
IM: 19
53 OAL

A 55-year-old man smoker, presented to the ED with TCP for 1 hour.

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3 OAL


1969/01/01 M
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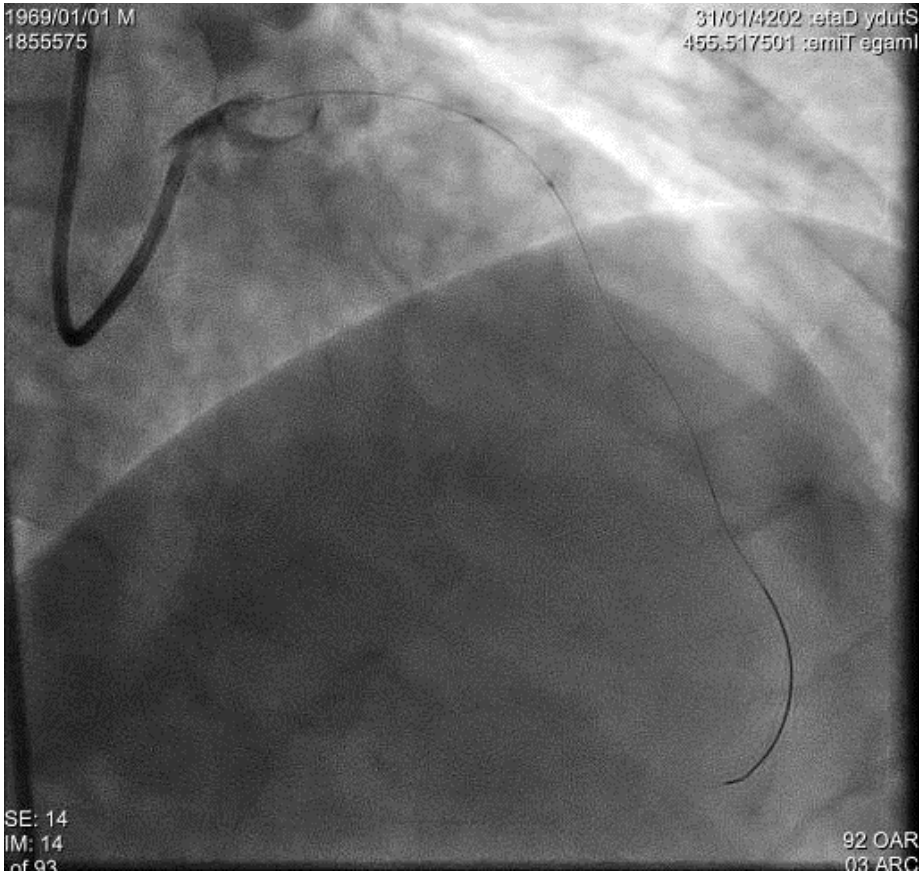
72 OAR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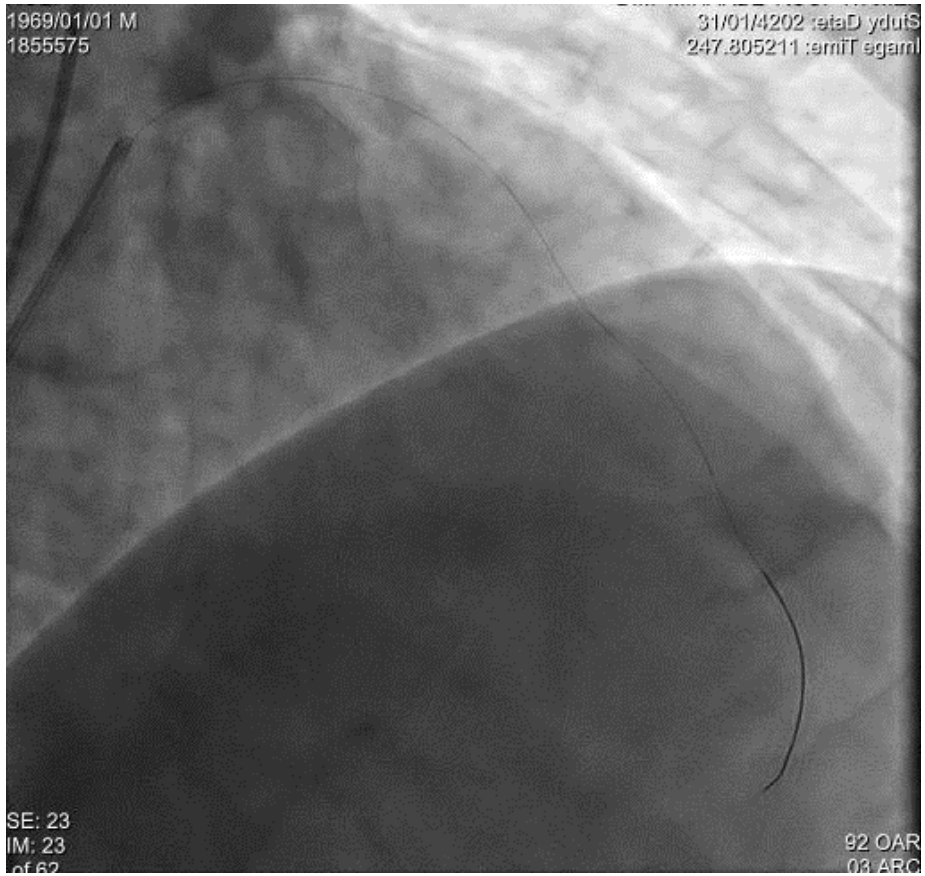
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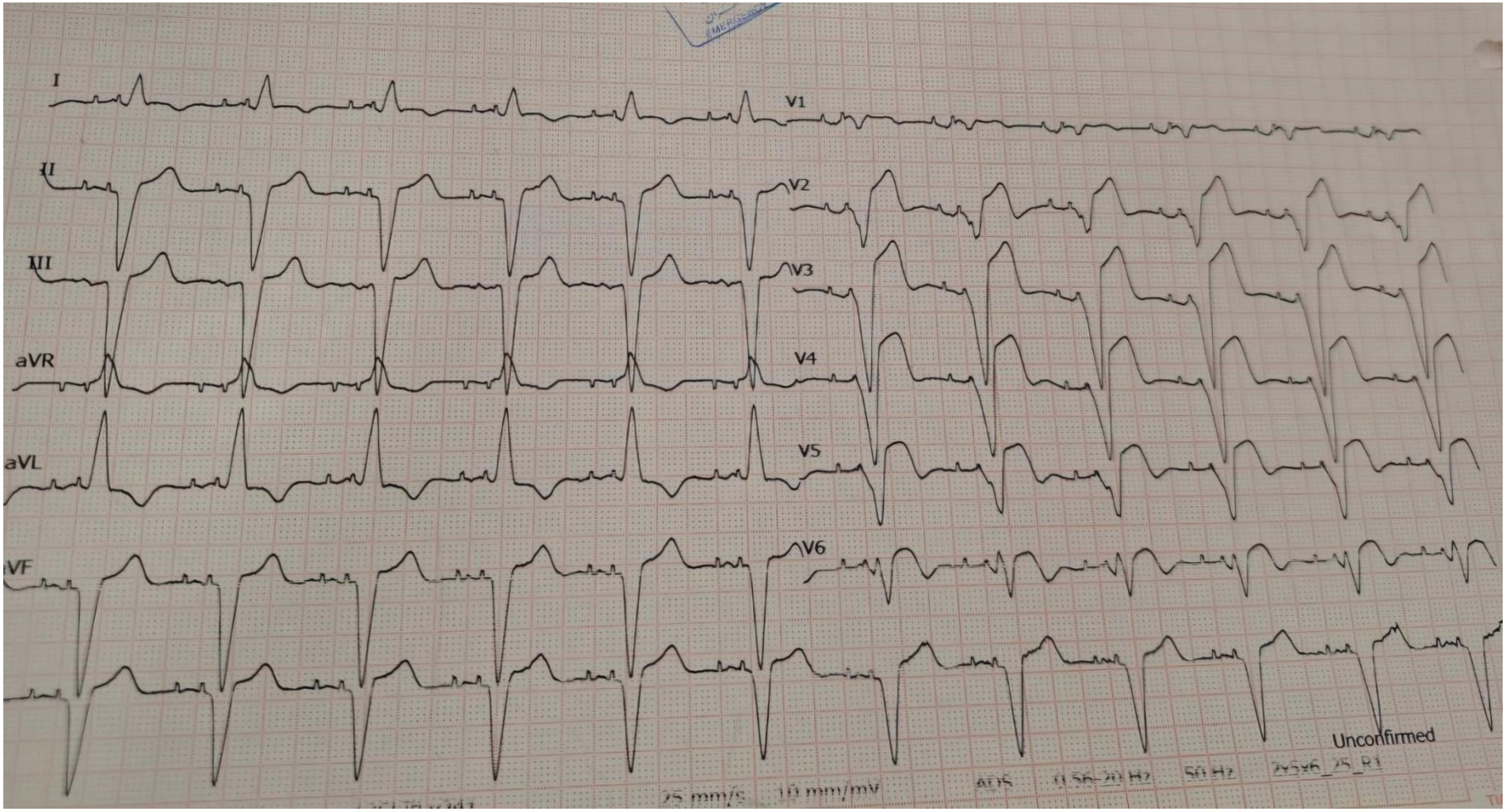
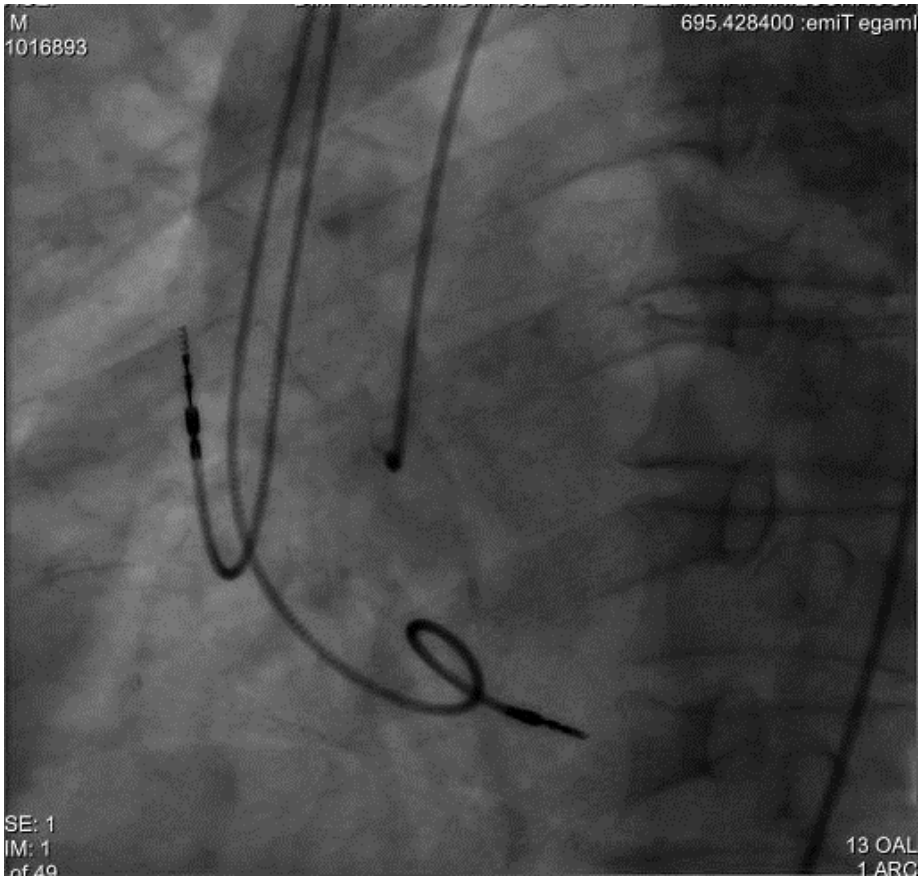
92 OAR

A 90-year-old man presented with chest pain 3 hours prior to admission and a history of pacemaker implantation in the previous year CVD RF(-).

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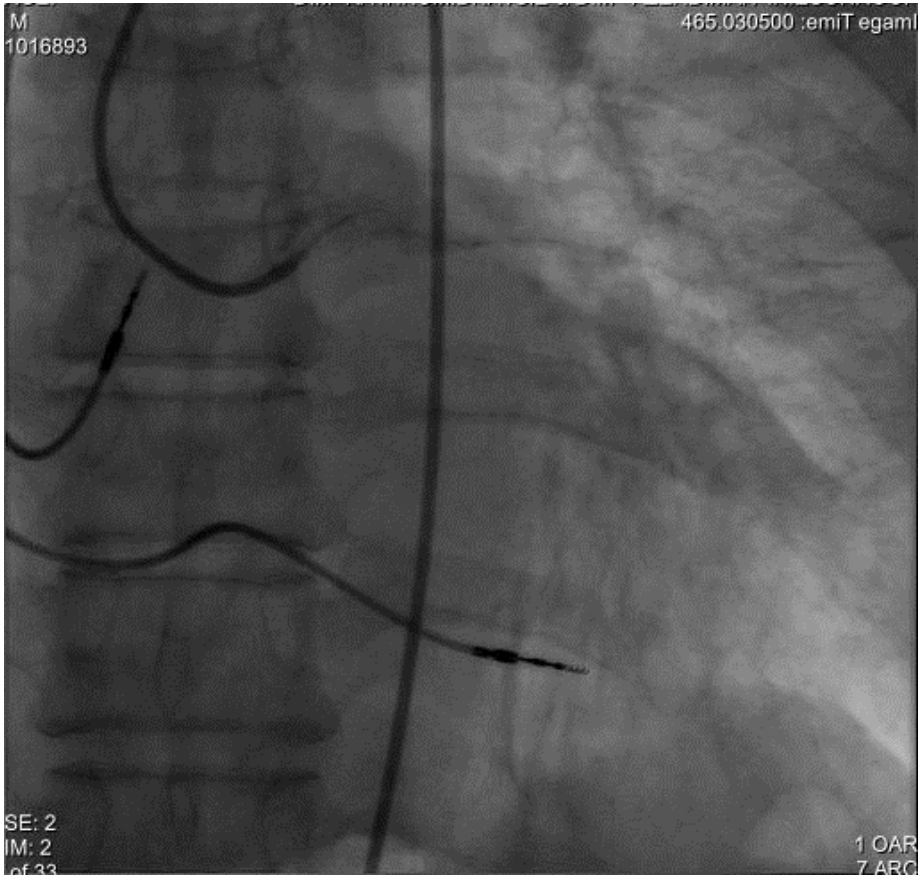
13 OAL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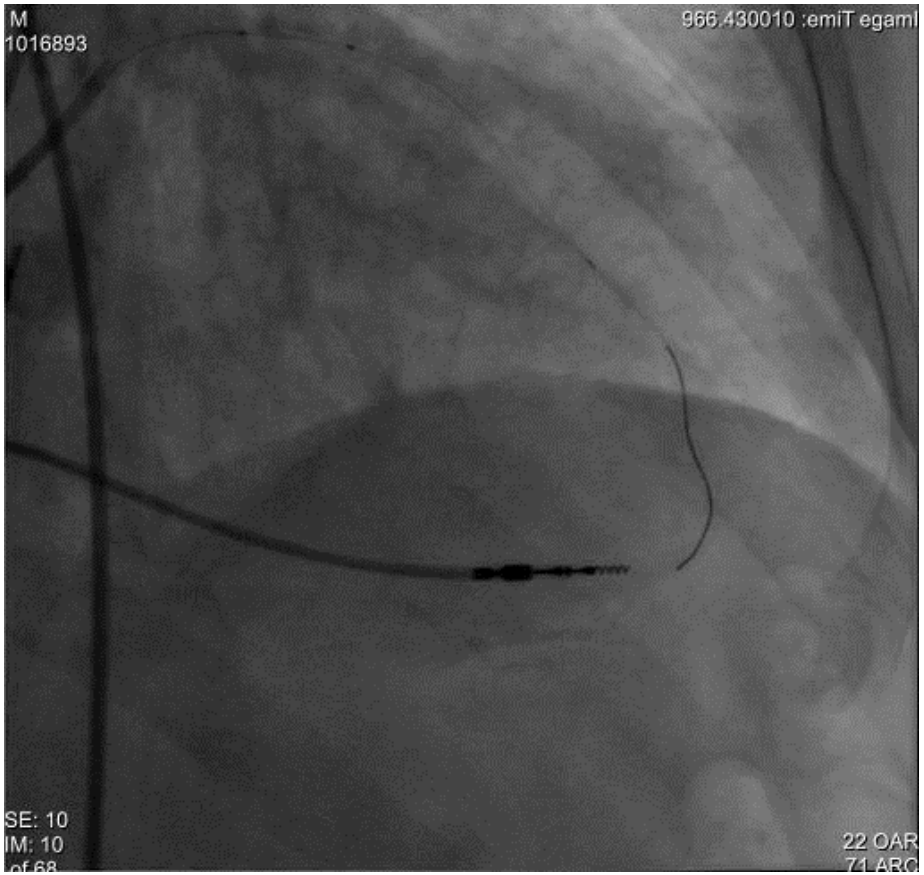
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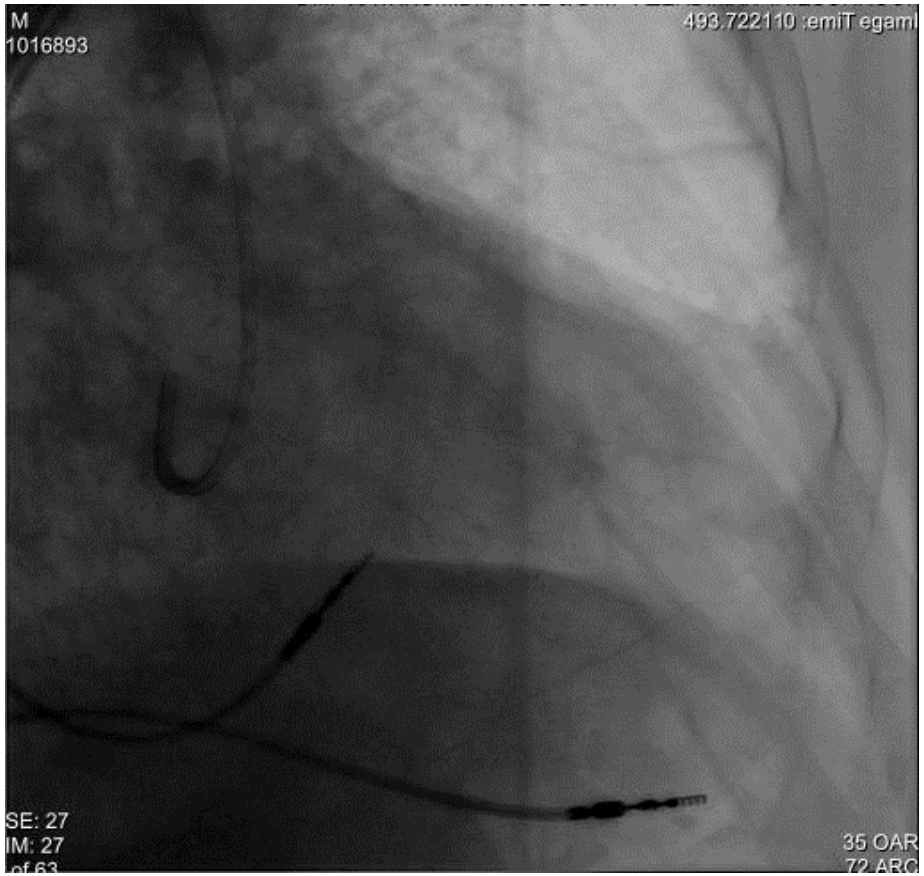
M
1016893
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35 OAR


Thanks for your attention

مرکز قلب تهران

دانشگاه علوم پزشکی و خدمات
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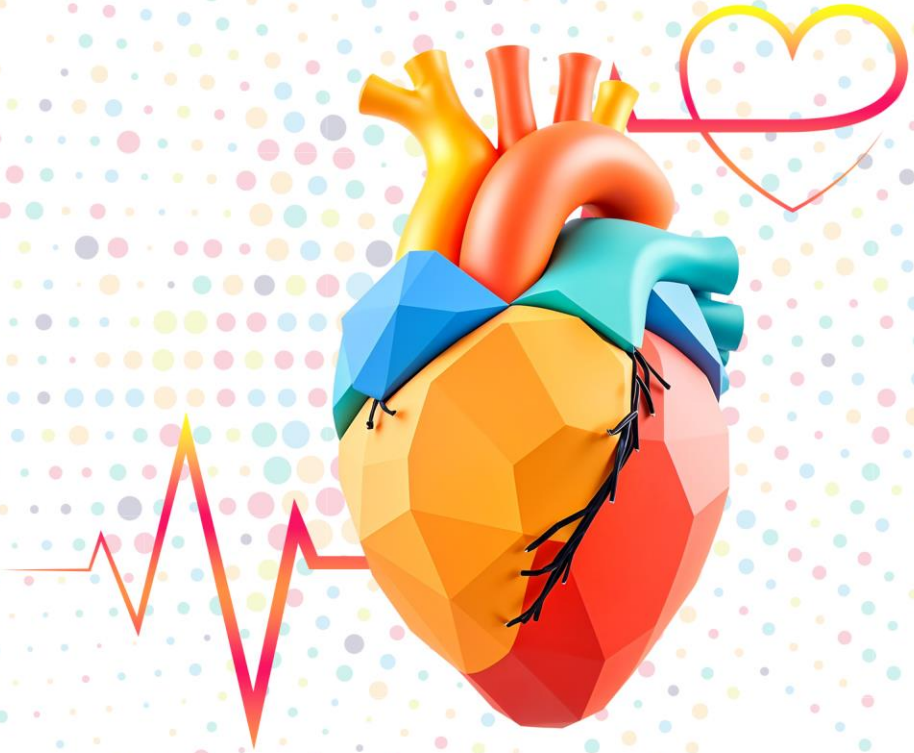
Critical Cardiovascular Care



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