

“When Everything That Could Go Wrong, Went Wrong: A Retrograde CTO Case”

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CLINICAL CASE OVERVIEW – CTO CASE



PATIENT INFORMATION



Age / Sex: 68 years / Male



Admission Date: 22 May 2026



Primary Diagnosis:

Non-ST-Elevation Myocardial Infarction (NSTEMI)



Clinical Course:

Patient presented with NSTEMI.

Initial coronary angiography revealed chronic total occlusion (CTO) of the right coronary artery (RCA).

Ischemia was proven by stress echocardiography.

Patient clinically stable.

Planned for repeat coronary angiography with intention of CTO intervention.



CARDIOVASCULAR RISK FACTORS

- Hypertension
- Dyslipidemia
- Type 2 Diabetes Mellitus
- Former smoker (20 pack-years)
- Positive family history of CAD



RELEVANT MEDICAL HISTORY

- Stable angina on medical therapy.
- No prior PCI or CABG.
- No history of heart failure.
- Preserved LV function.



PRESENTING SYMPTOMS

- Exertional chest discomfort (CCS II–III) for several months.
- Dyspnea on exertion.
- No rest pain.
- Symptoms persisted despite optimal medical therapy.



CLINICAL DECISION



1st Coronary Angiography:

CTO of the RCA identified.



Ischemia Proven:

Stress echocardiography showed ischemia in the inferior wall territory.

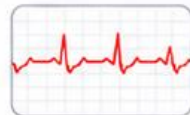


2nd Coronary Angiography:

Planned for CTO intervention.
Patient clinically stable.



ECG FINDINGS



- Sinus bradycardia, heart rate ~45 bpm, without acute ST-segment elevation.
- Bradycardia likely secondary to RCA territory ischemia due to CTO occlusion.
- No significant dynamic changes in ST-segment or T-waves.



ASSESSMENT & PLAN



- NSTEMI presentation without enzyme dynamics, with ischemia proven in the RCA territory.
- CTO of the RCA demonstrated on initial coronary angiography.
- Planned for repeat coronary angiography with intention of CTO intervention. Patient clinically stable.



LABORATORY FINDINGS

- Baseline laboratory results within normal limits.

Troponin I

0.032
ng/mL

CK-MB

16
U/L

Creatinine

0.9
mg/dL

eGFR

78
mL/min/1.73m²

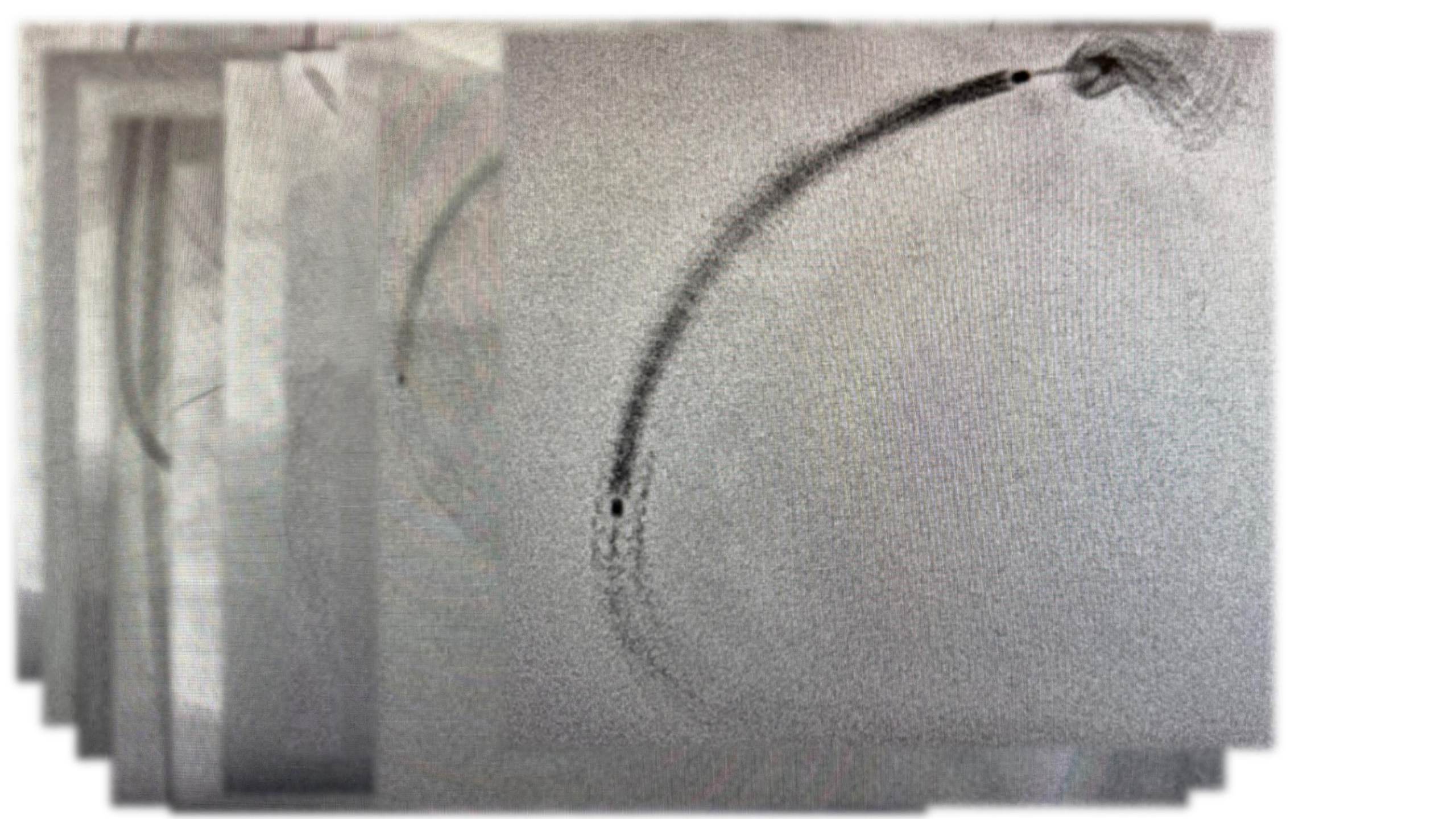
No significant dynamic rise in cardiac enzymes.

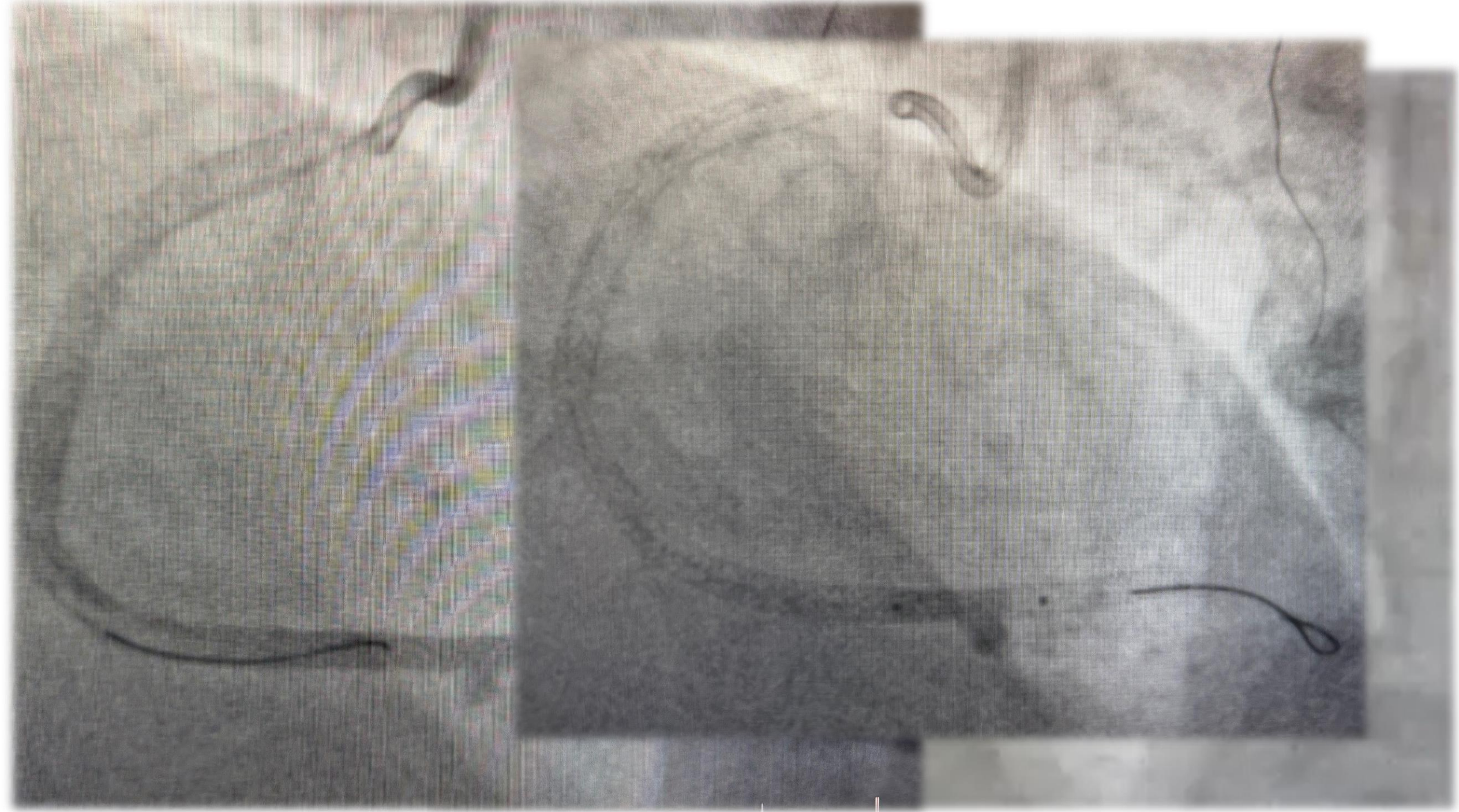
No evidence of acute myocardial injury.

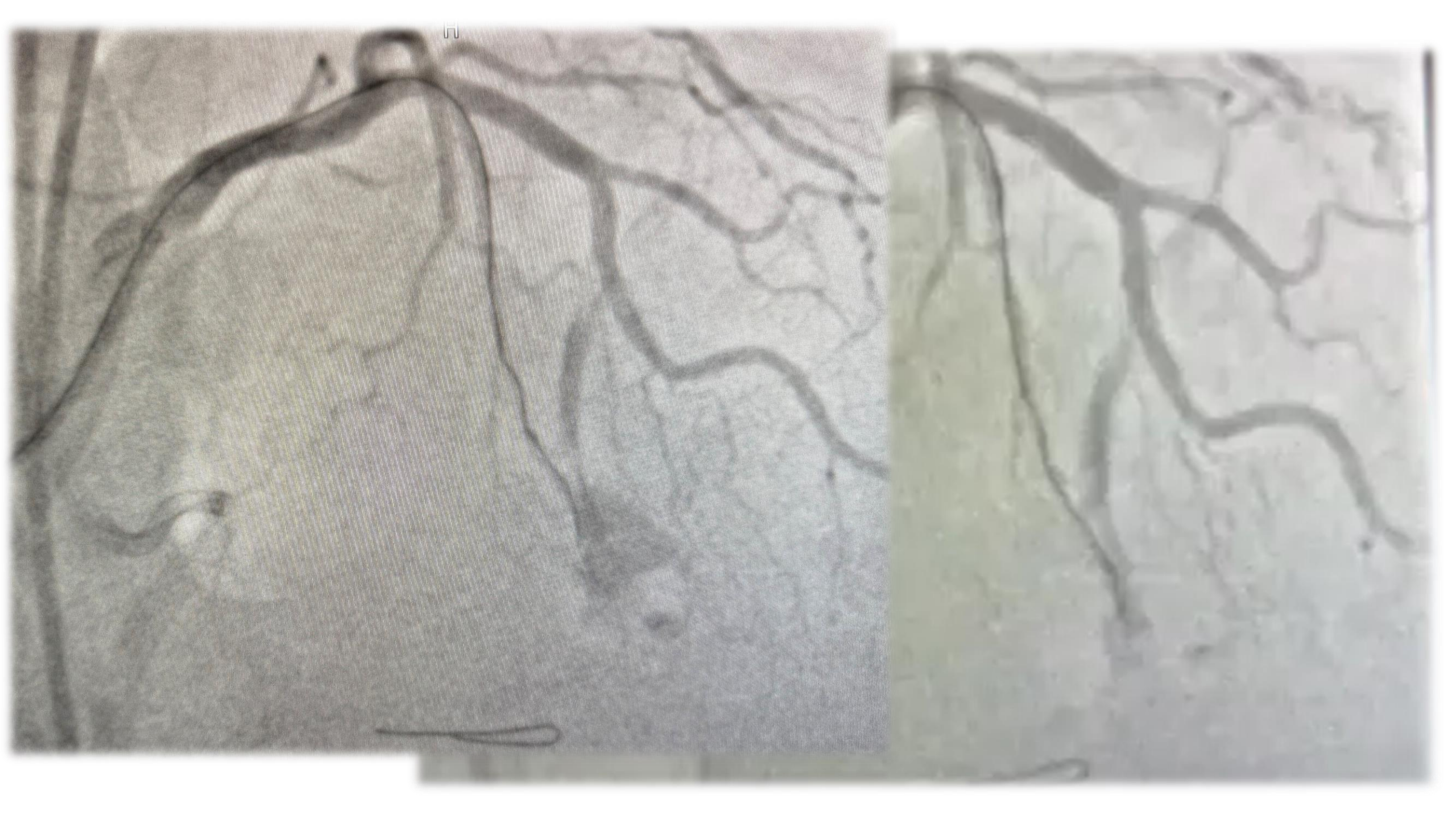


CLINICAL STATUS

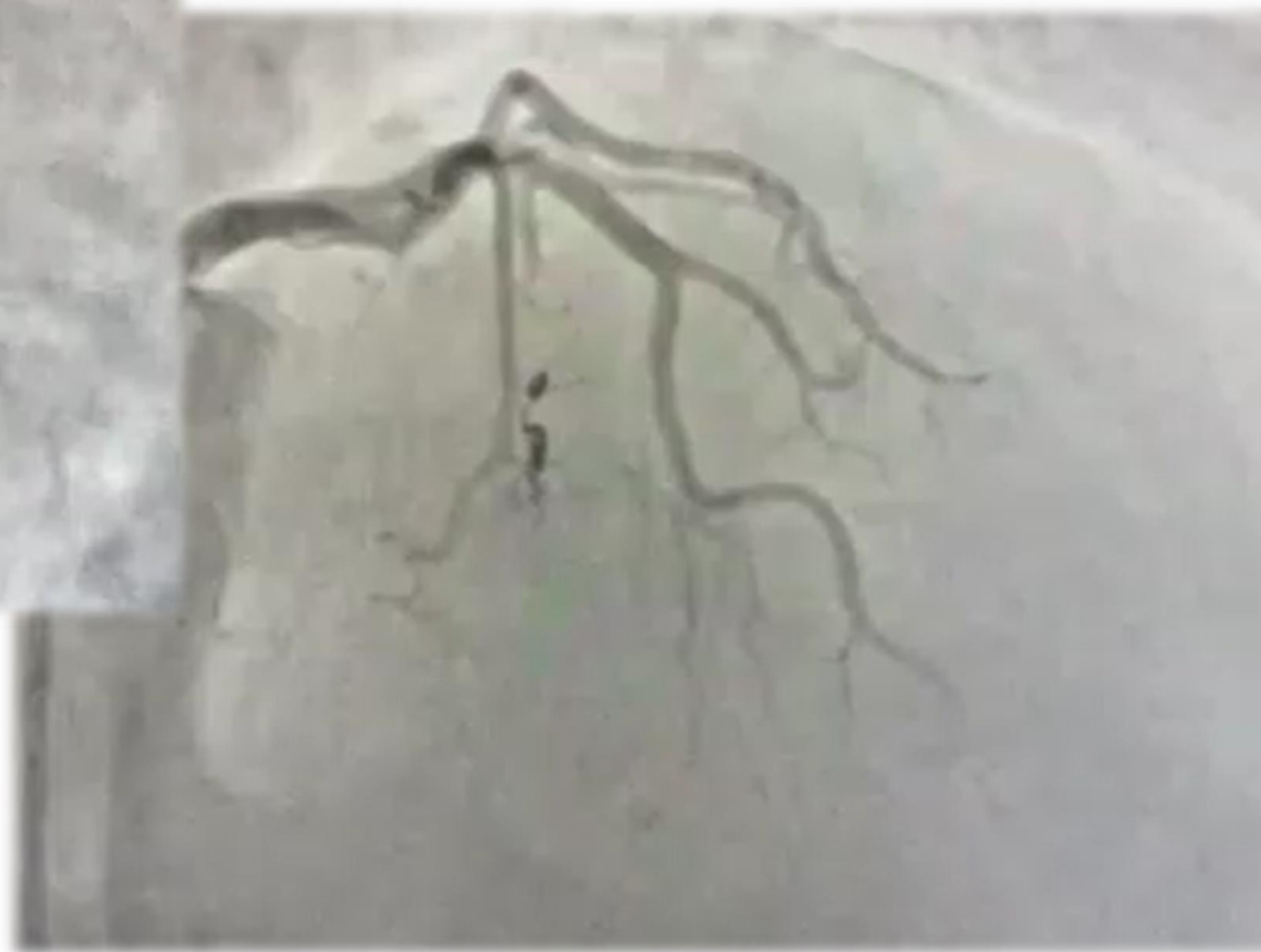
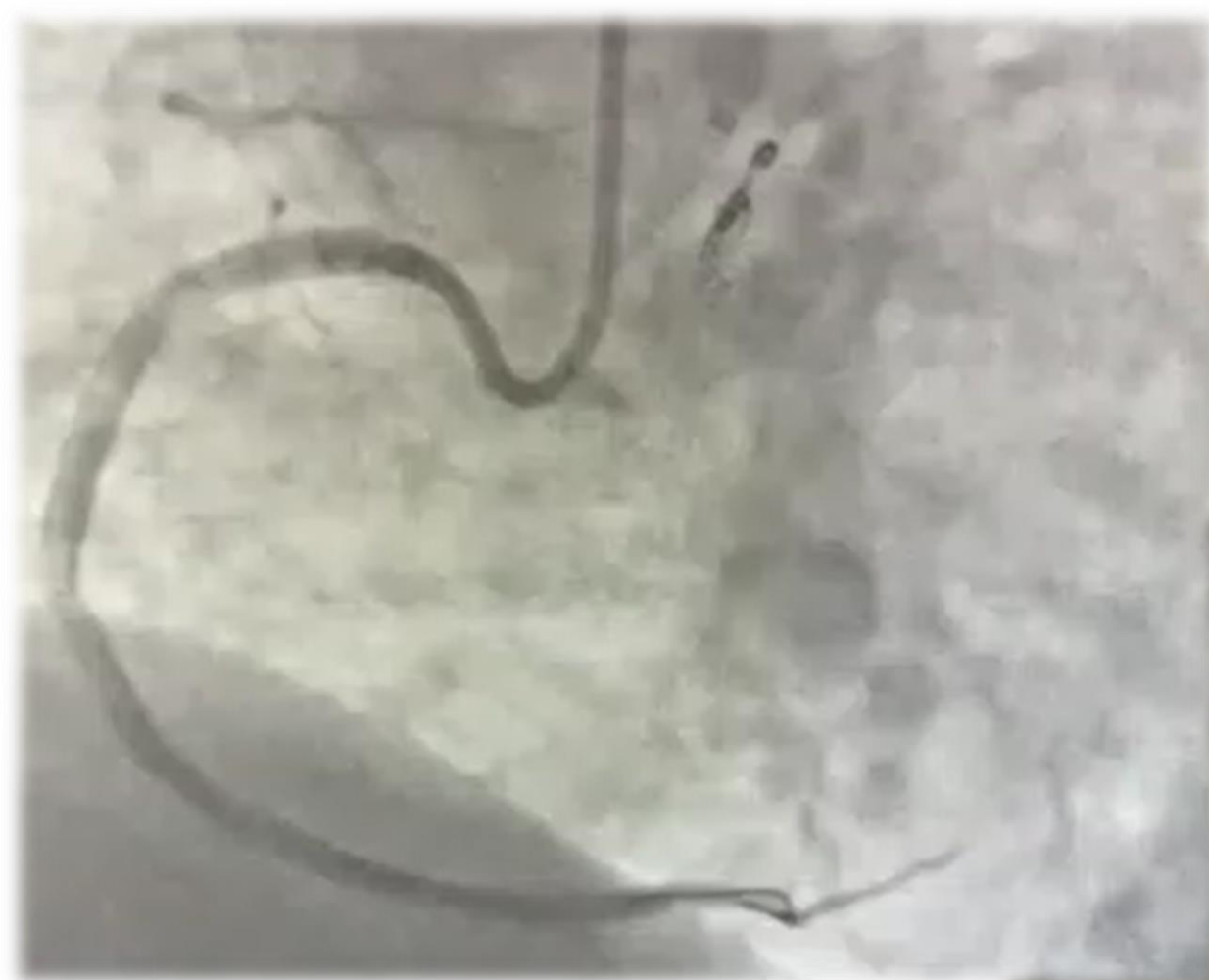
- Hemodynamically stable.
- No ongoing chest pain.
- Blood pressure: 125–135 / 70–80 mmHg.
- Heart rate: ~70 bpm.
- Oxygen saturation: 98% on room air.
- Left ventricular function: preserved (EF ~55–60%).





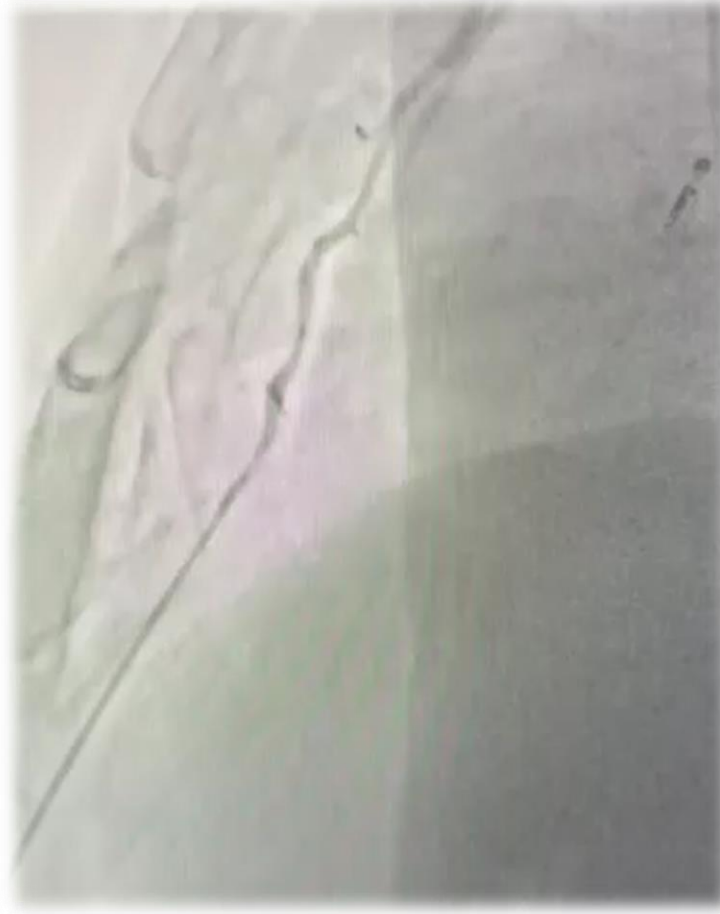






**Pericardial effusion with
progressive hemodynamic
deterioration**

- Urgent **pericardiocentesis** initiated
- First puncture attempt → internal mammary artery injury**
- Second attempt → successful and safe pericardial access**
- Pericardial drainage established
- Hemodynamics subsequently stabilized



TAKE-HOME MESSAGES

1. Expect the unexpected

Complex CTO PCI can turn from controlled to critical within seconds.

2. Recognize complications early

Rapid identification of **perforation and bleeding** is crucial.

3. Know your bailout strategies

Covered stents, coil embolization and pericardiocentesis can be lifesaving.

4. One complication may lead to another

After successful bailout, **remain vigilant and reassess continuously.**

5. Success is more than crossing the CTO

Mastering complications is part of mastering CTO PCI.



LET'S CONNECT



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