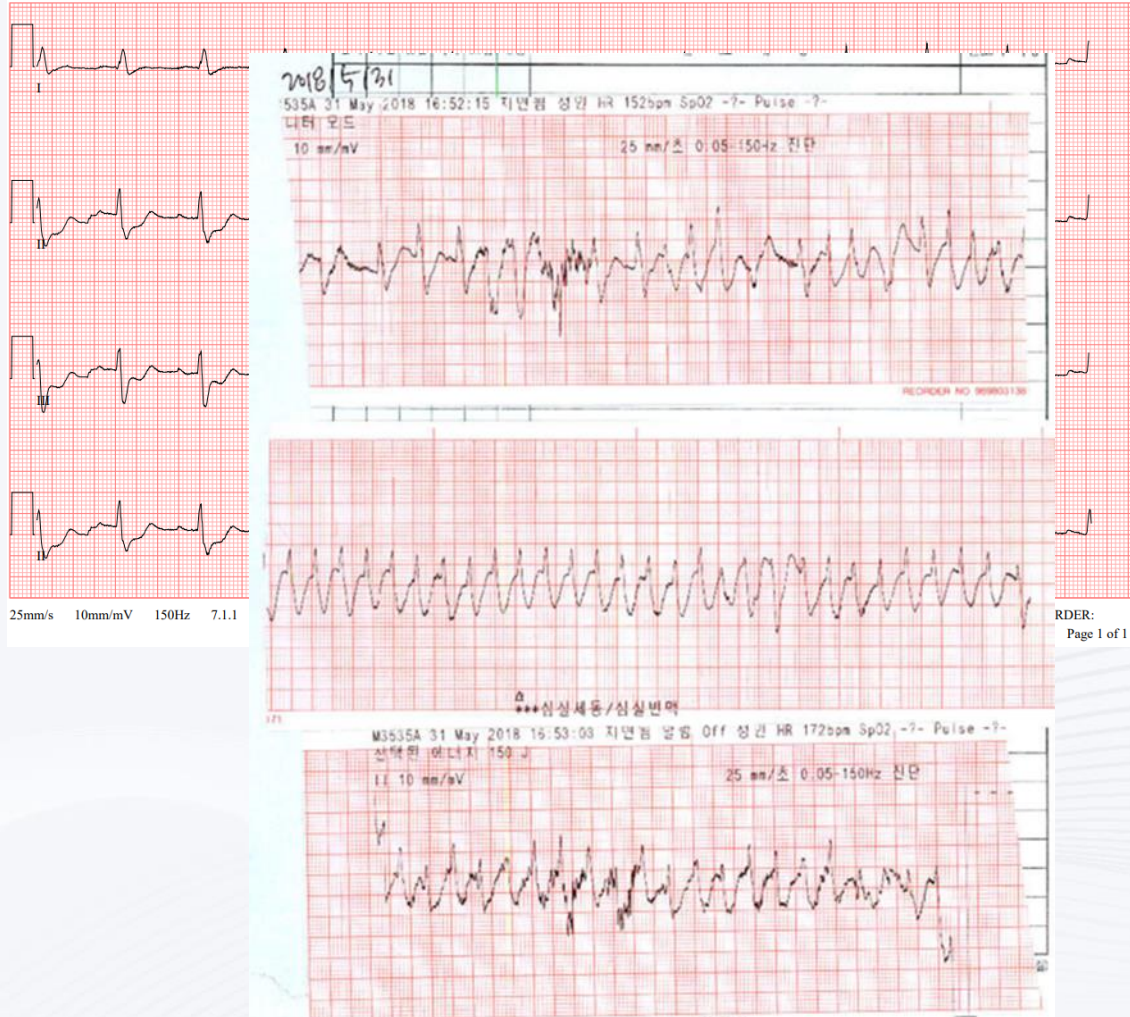


# Left Main AMI with Cardiogenic Shock, How to Rescue?

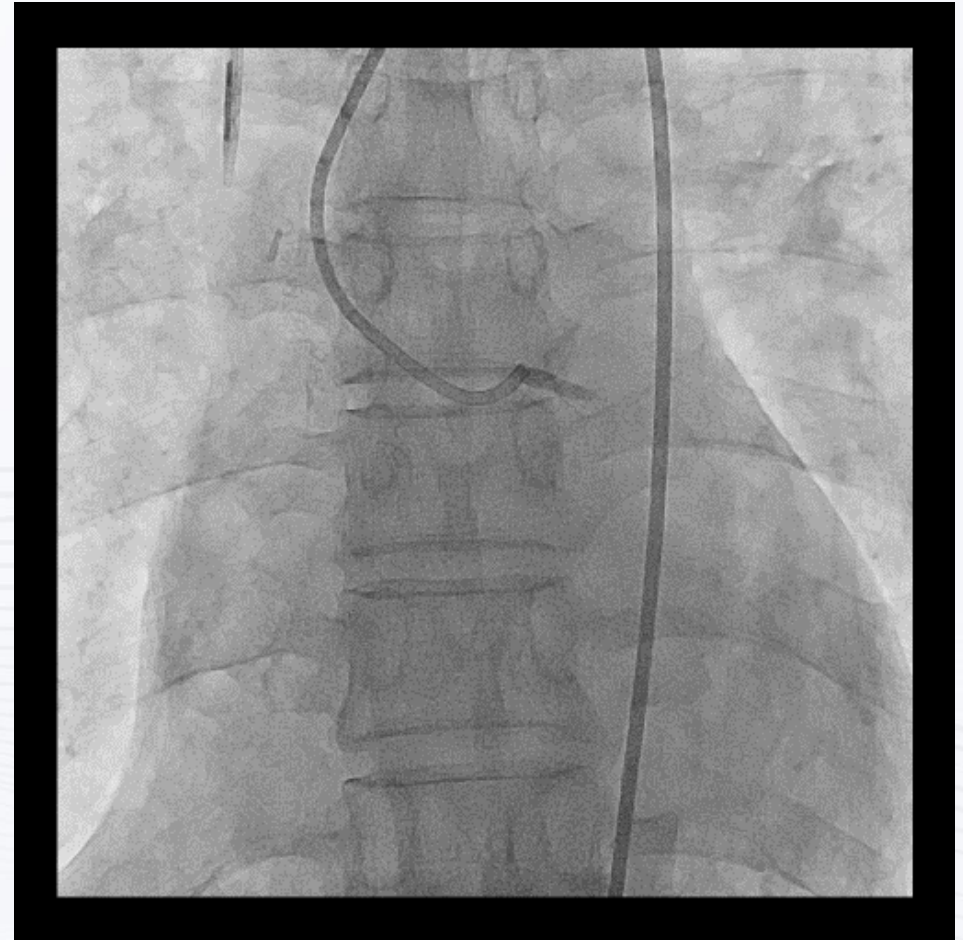
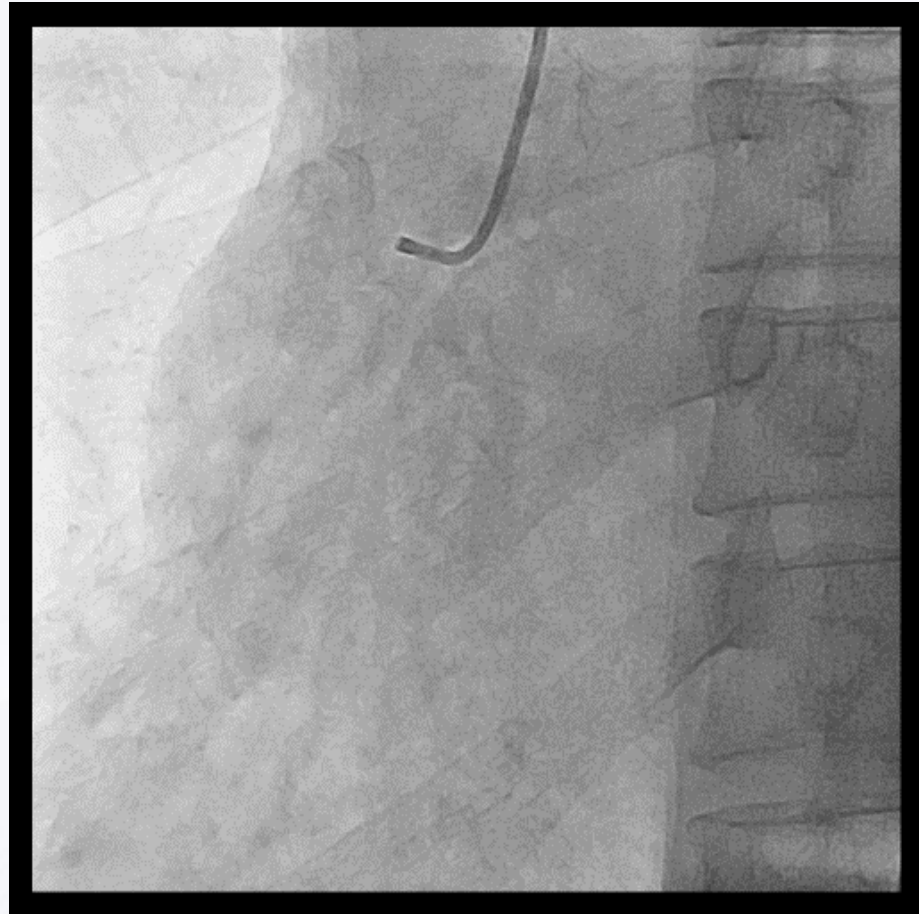
**Jung-Min Ahn, MD.**

University of Ulsan College of Medicine,  
Heart Institute, Asan Medical Center, Seoul, Korea

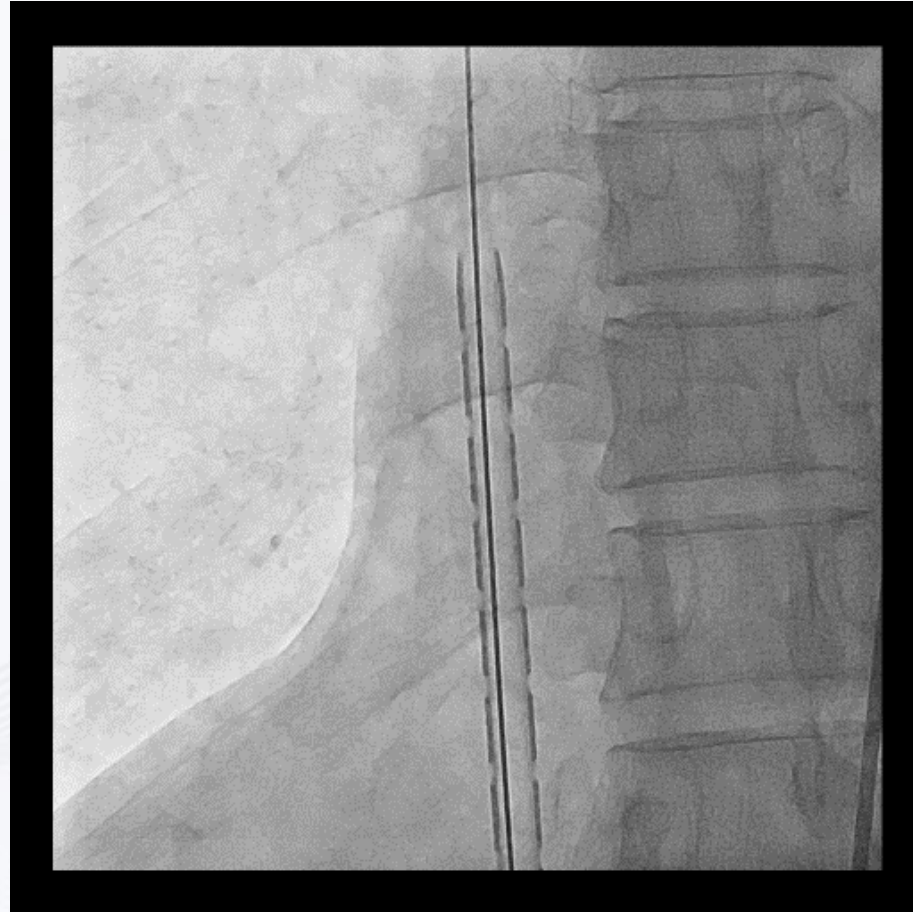
# 57Y0/M

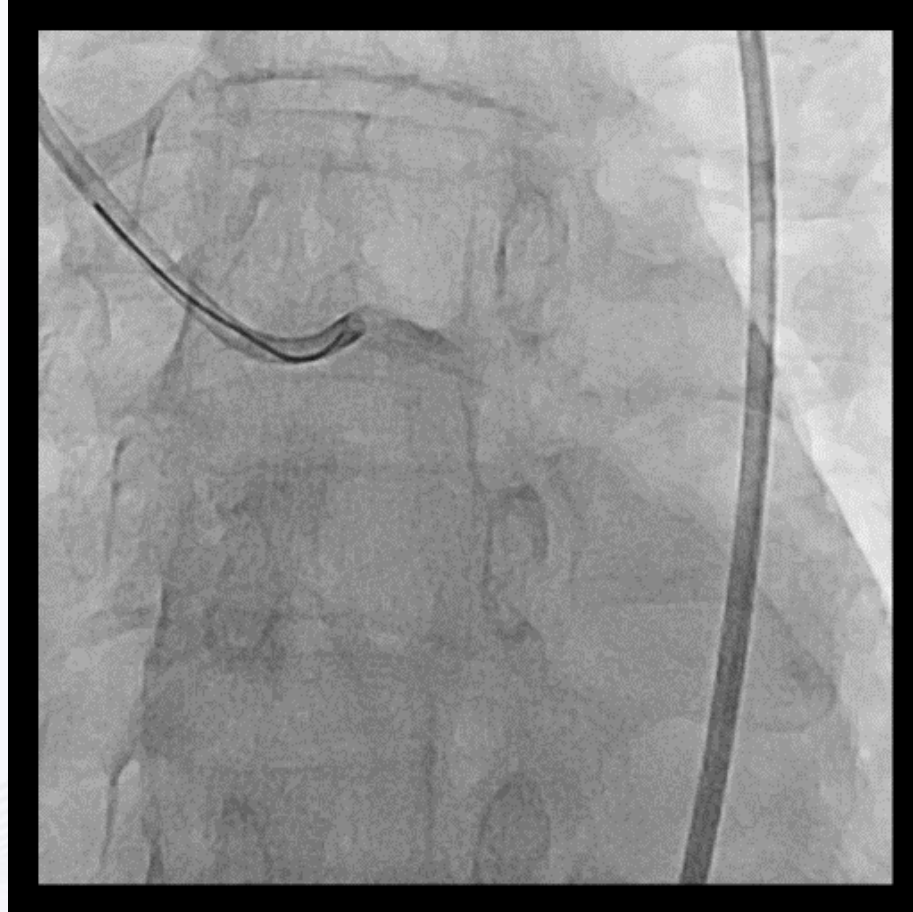


# CAG

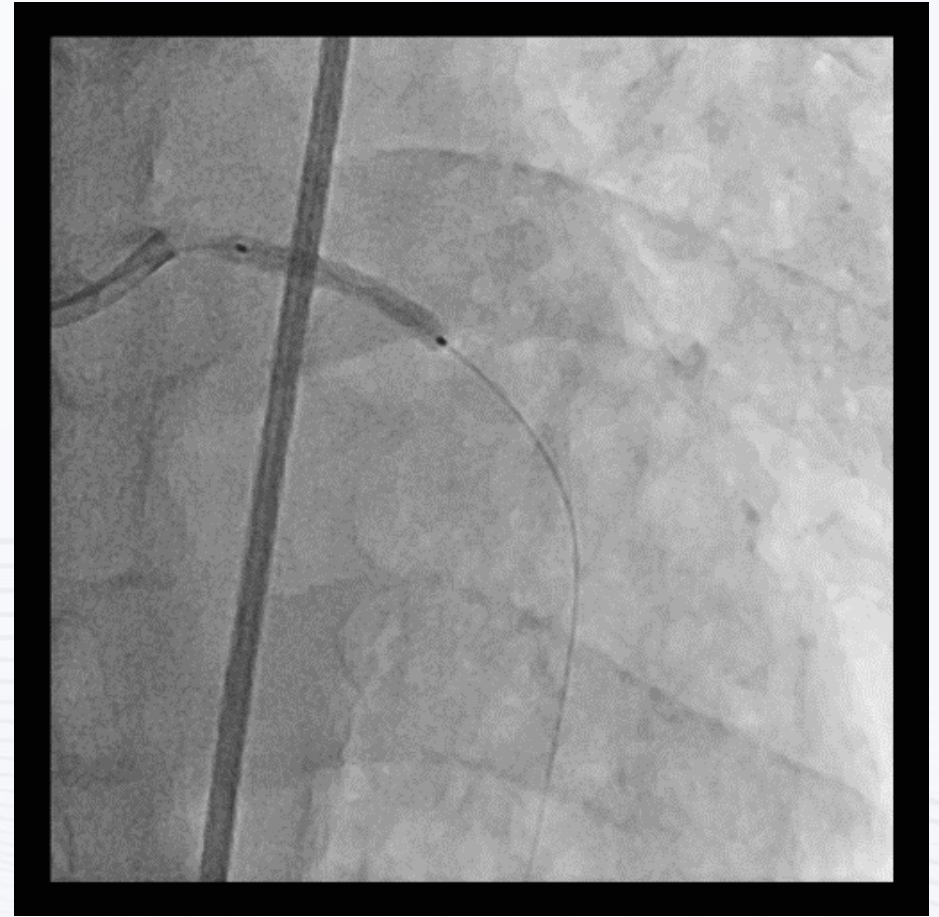
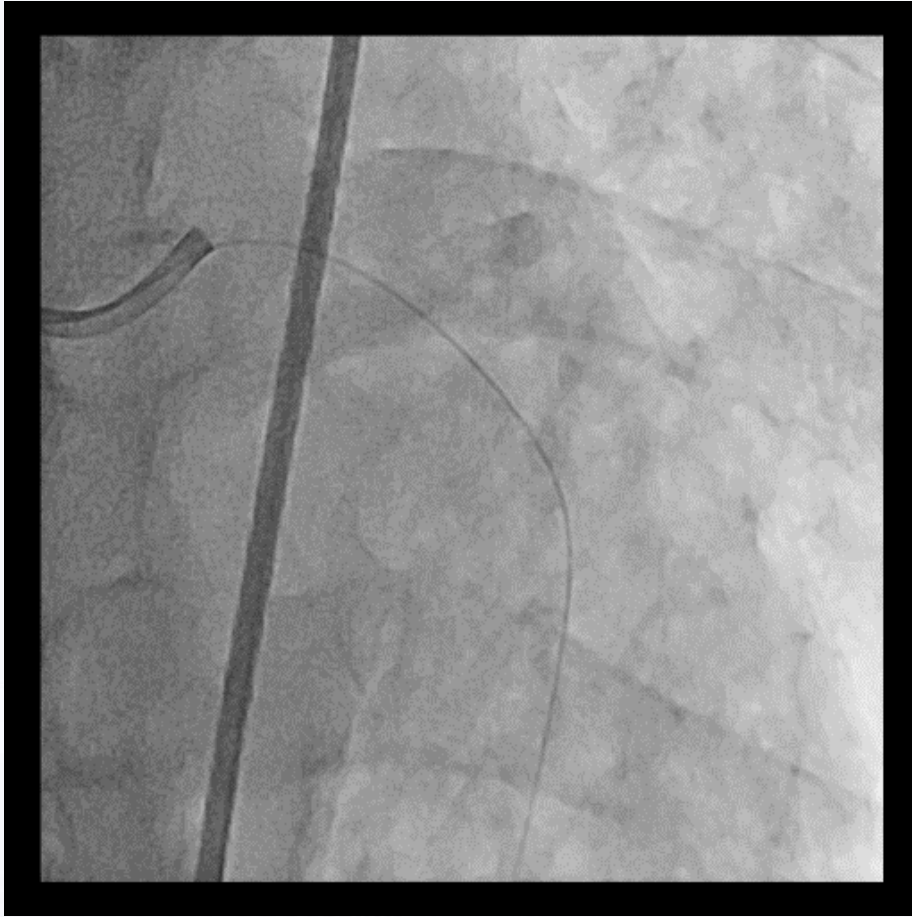


# ECMO

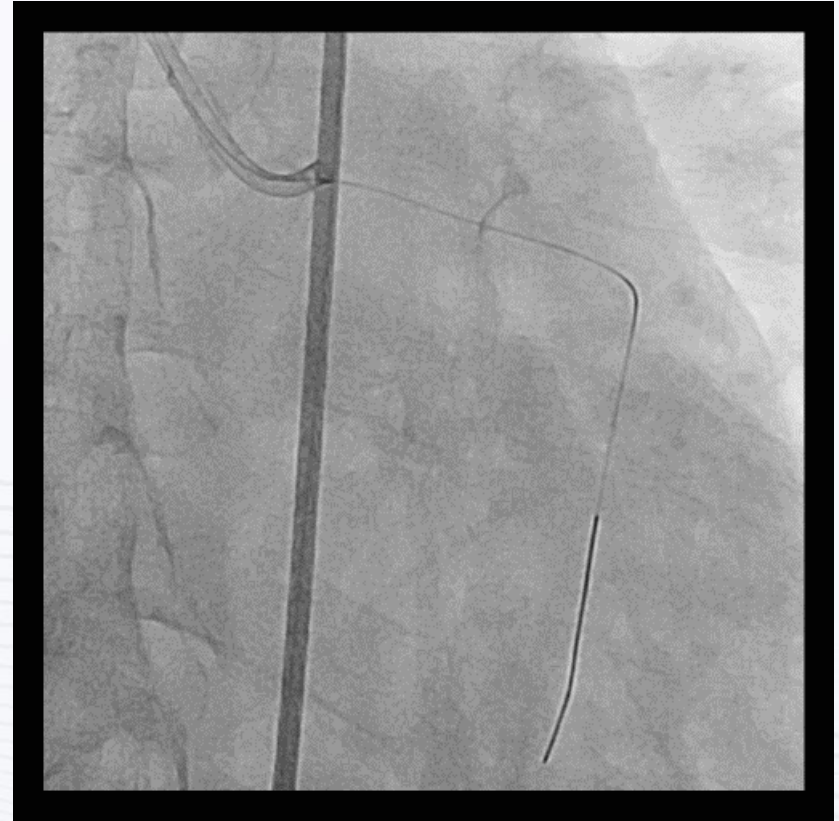
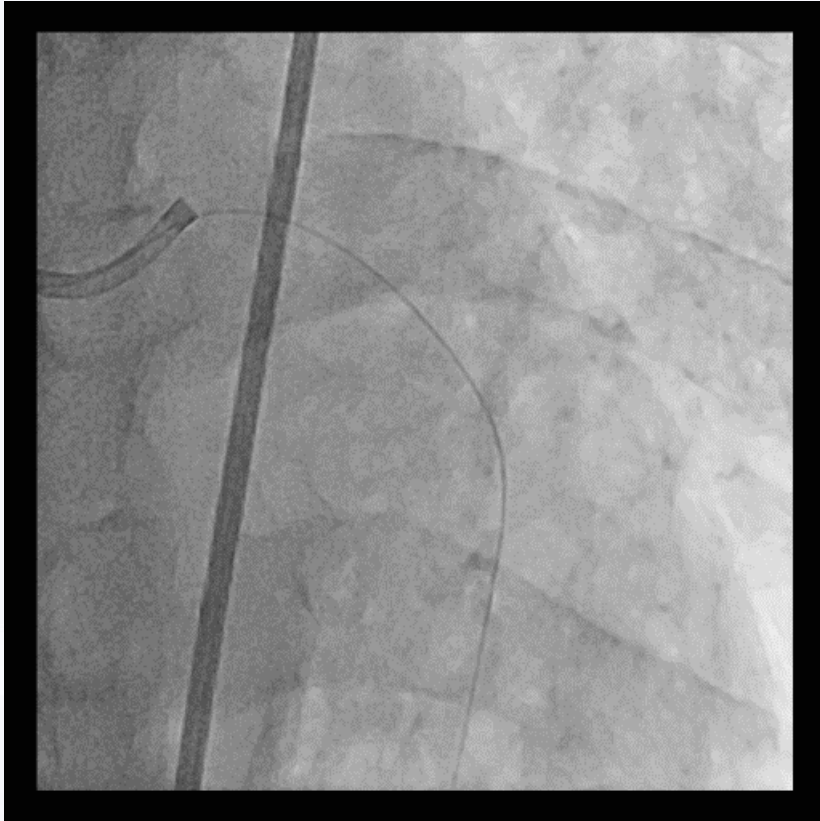




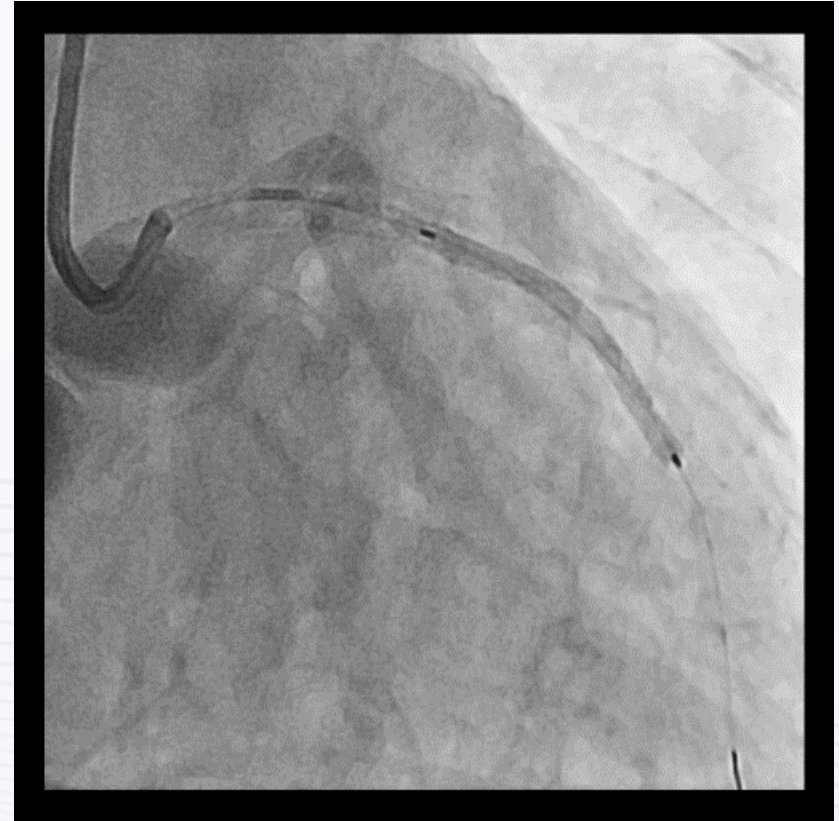
# PCI



# PCI

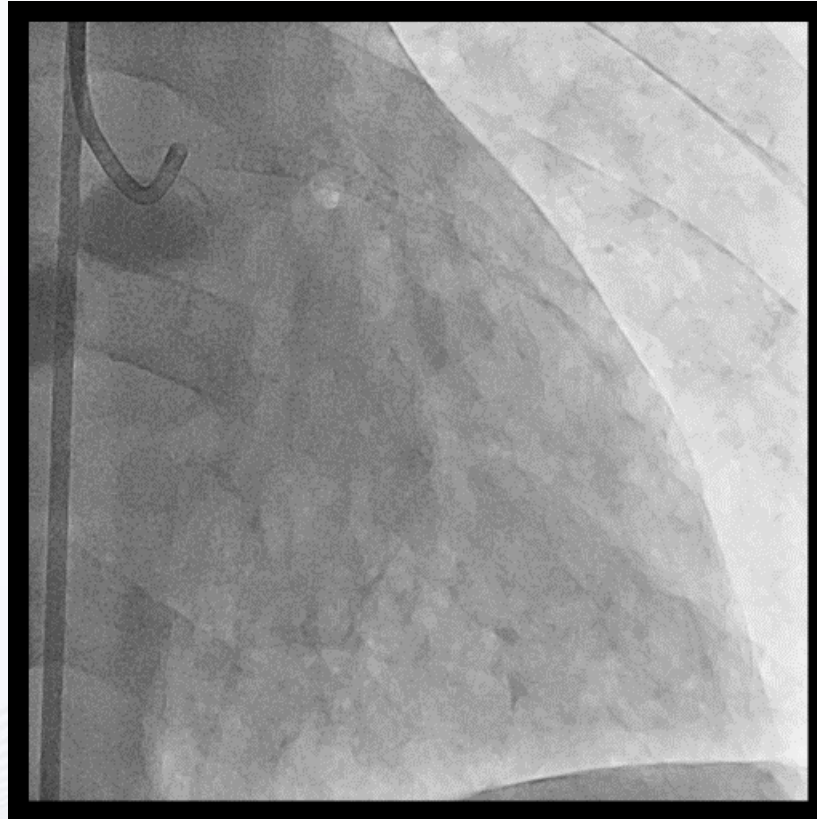


# LM and LAD Stenting

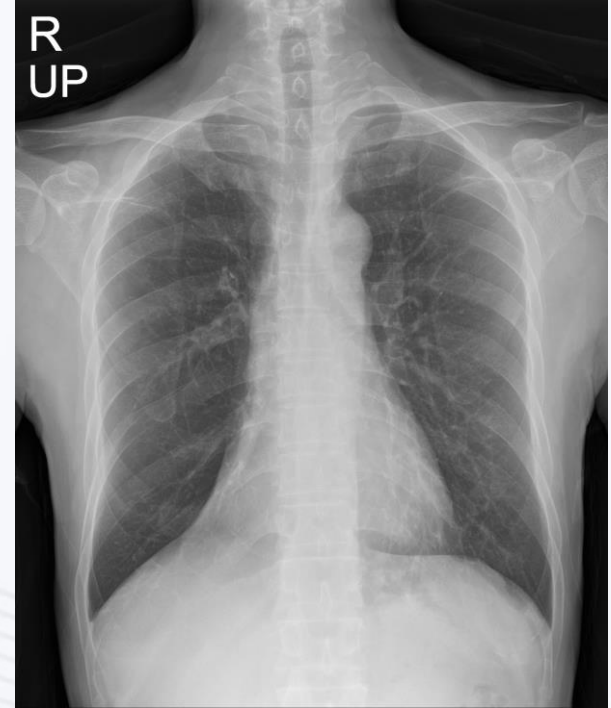
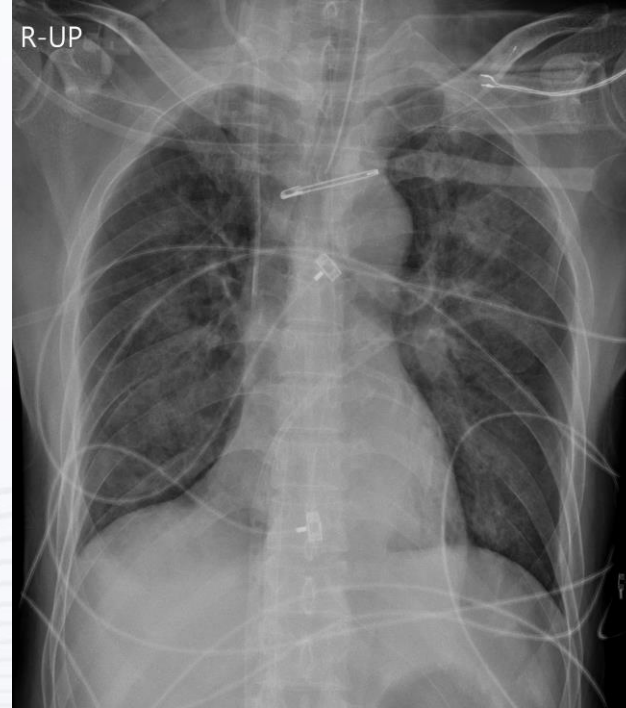




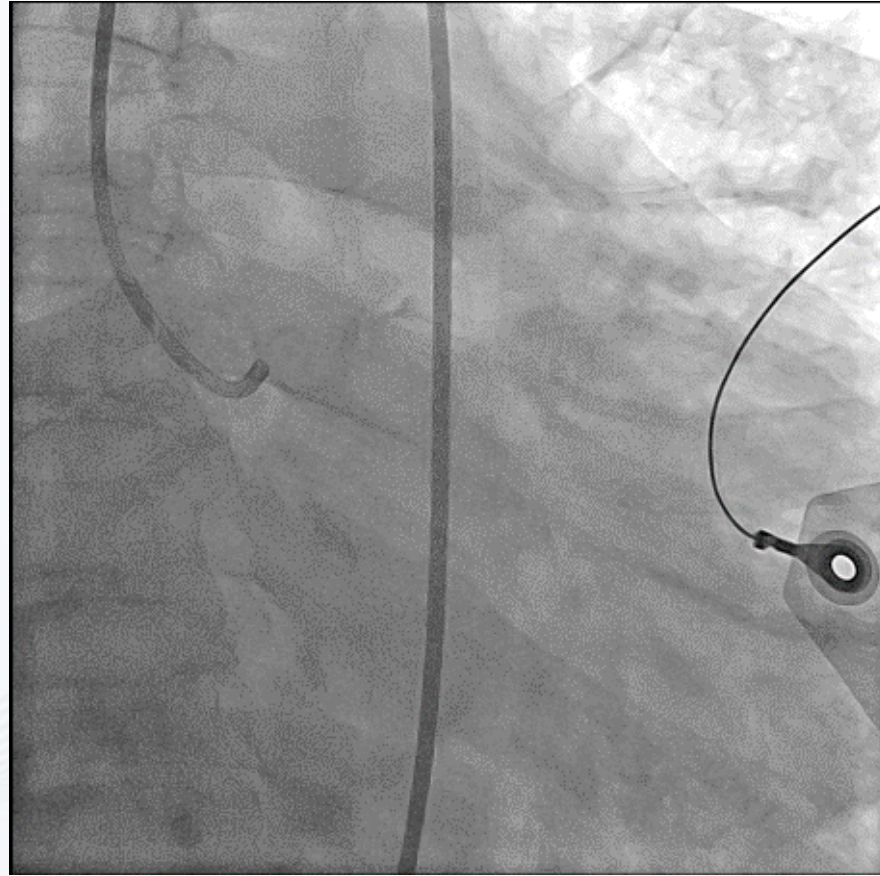
# Final Angiography



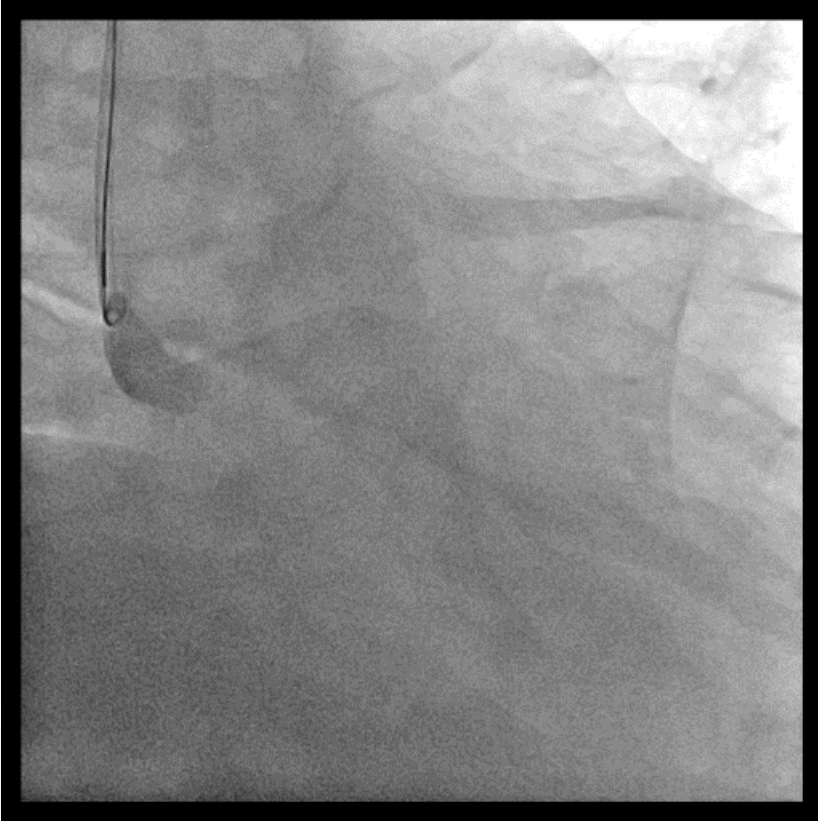
# CXR Follow-up



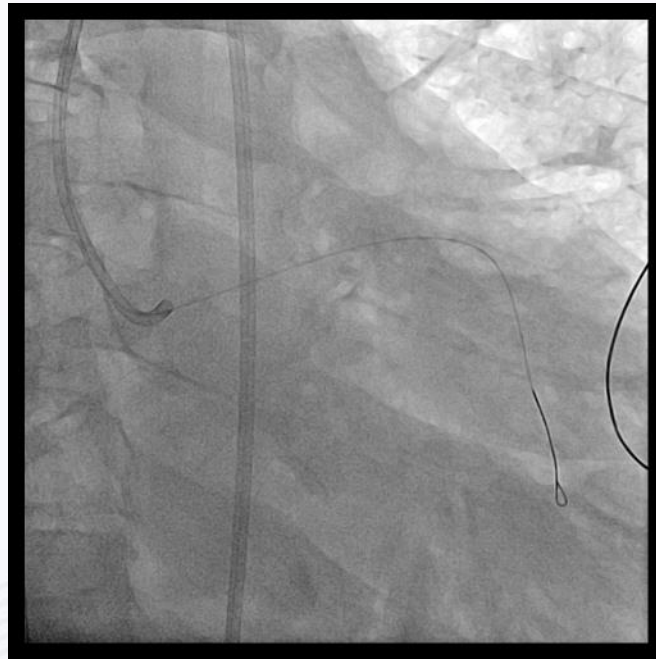
# 68YO/M



# Wiring



# Intubation and ECMO



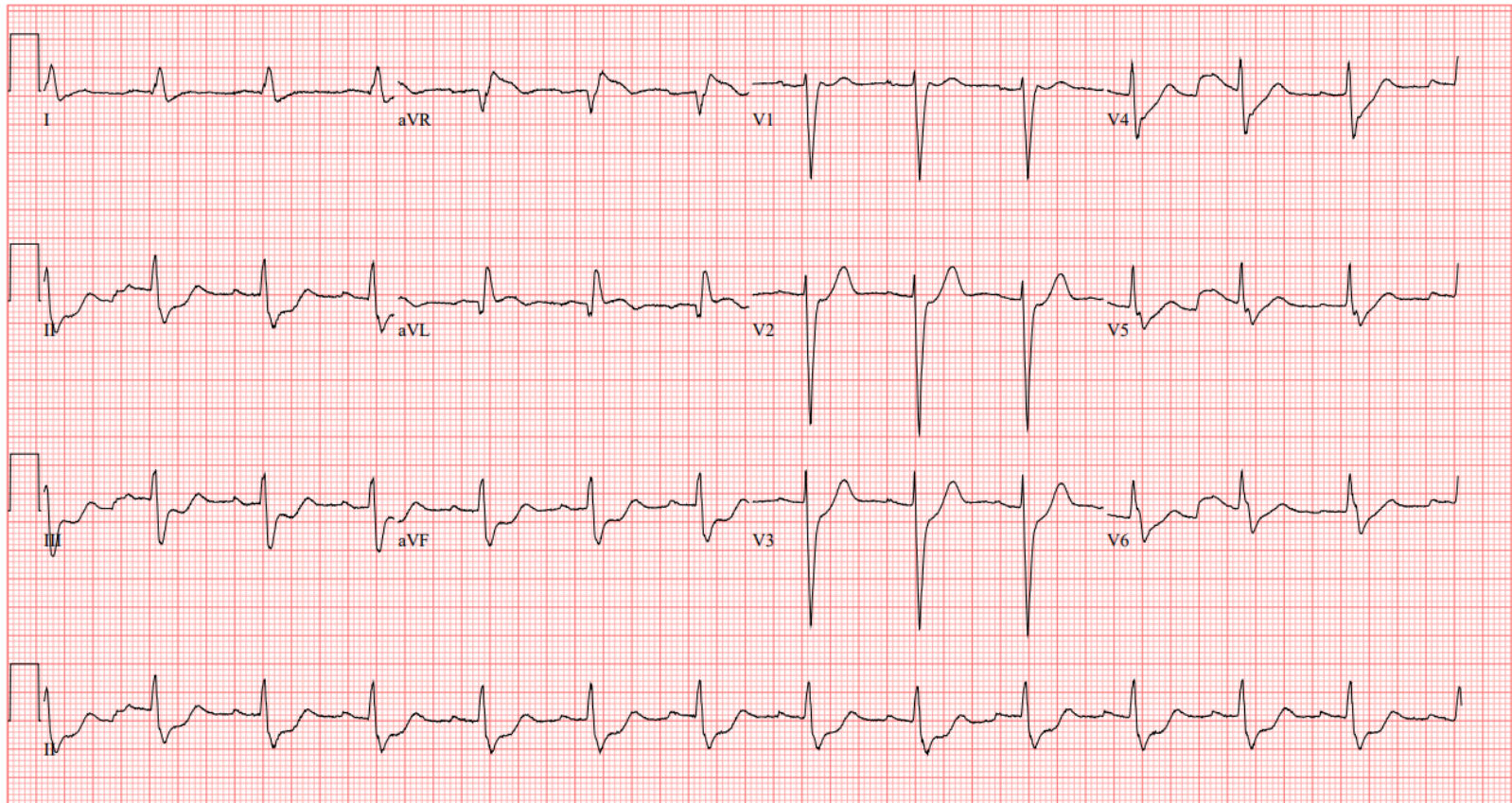
# Final CAG



# 79YO/F with COVID infection

Referred by:

Newly Acquired

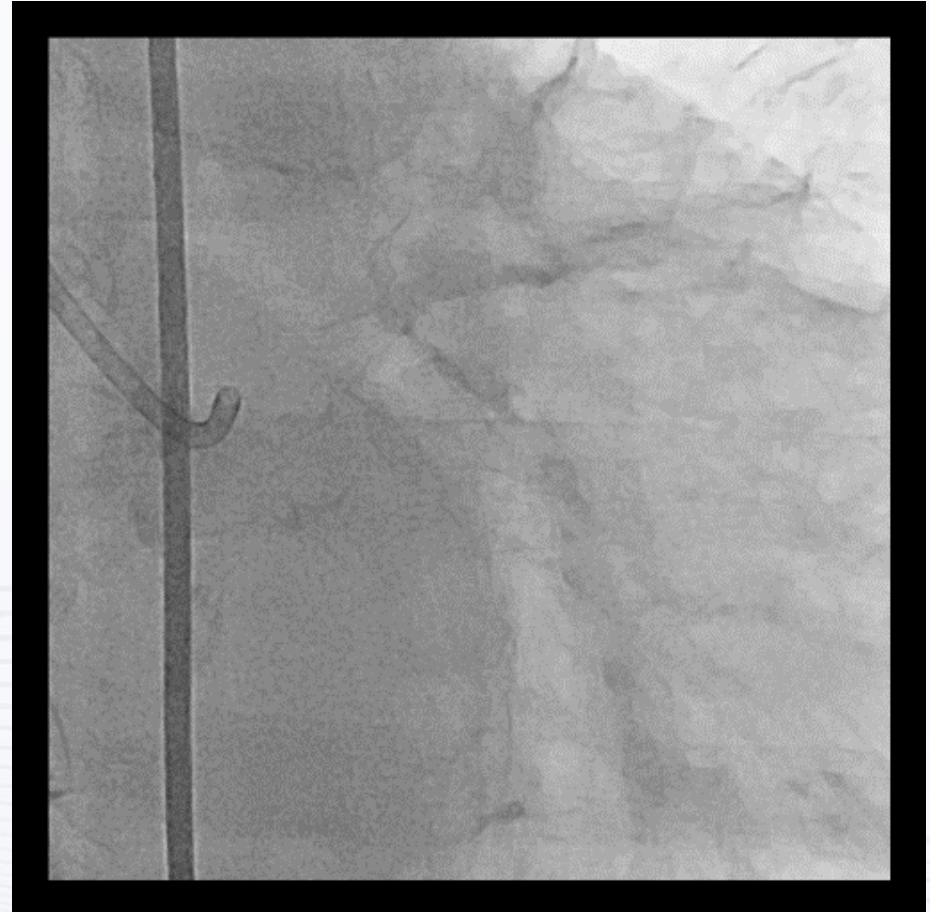
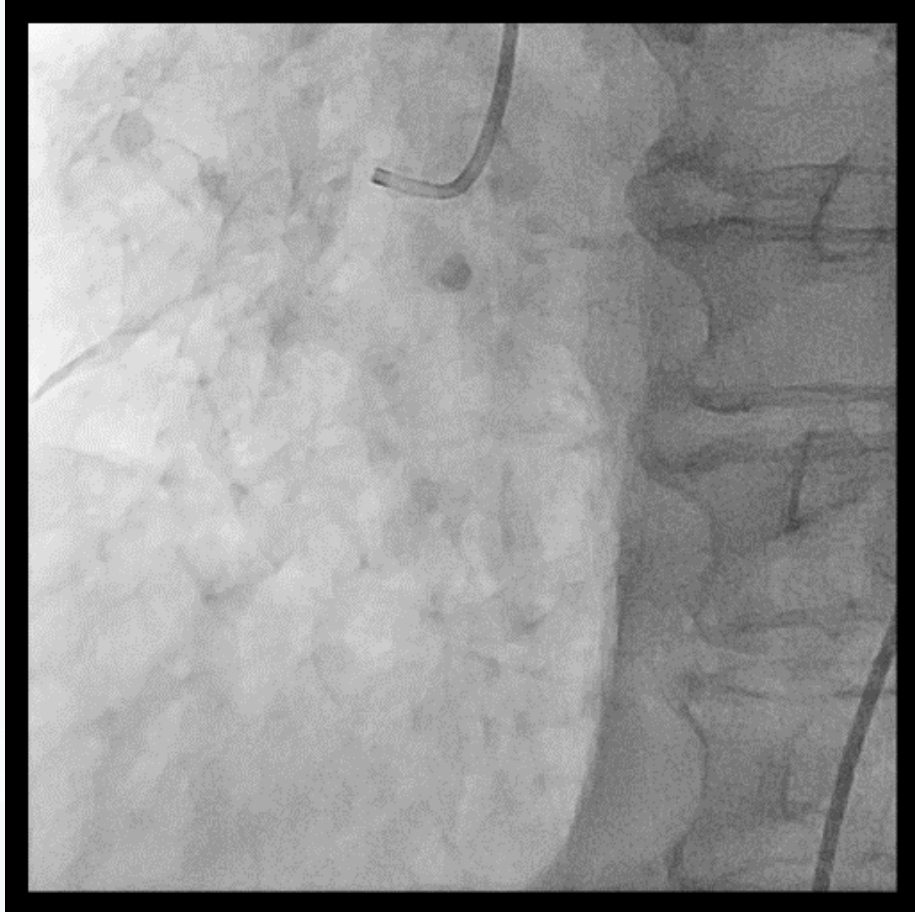


25mm/s 10mm/mV 150Hz 7.1.1 12SL 241 CID: 1

EID:Newly Acquired EDT: ORDER:

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# LAD Ballooning



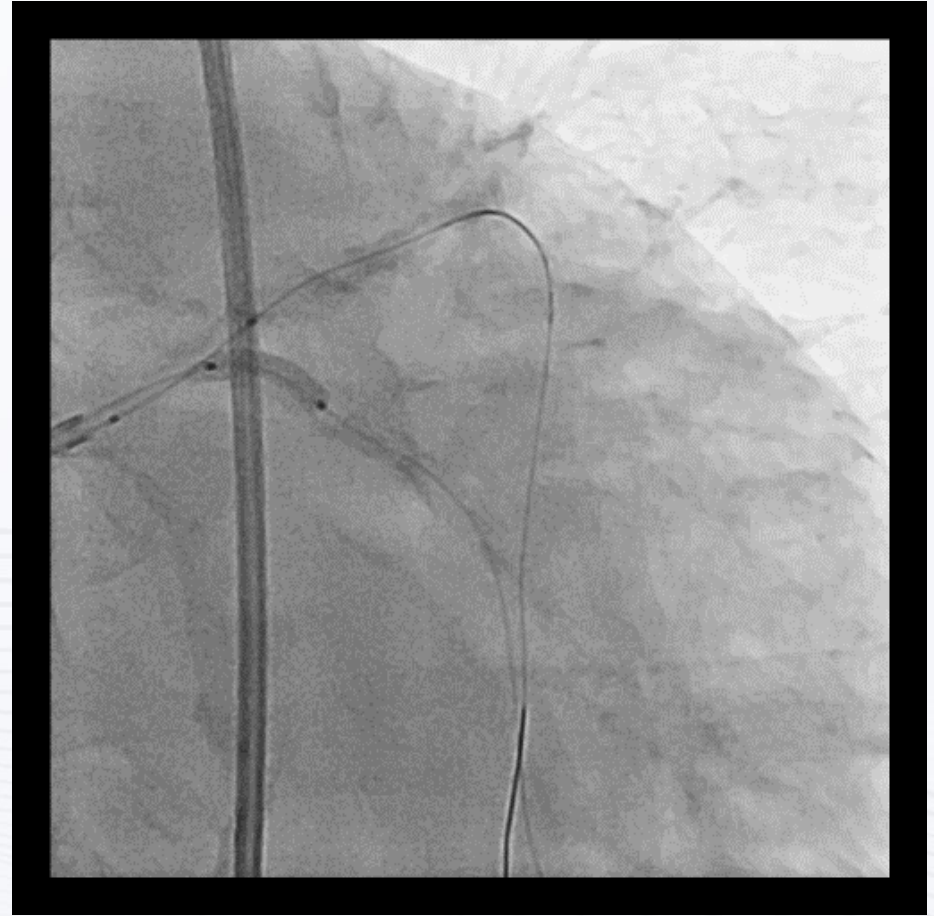
# CAG



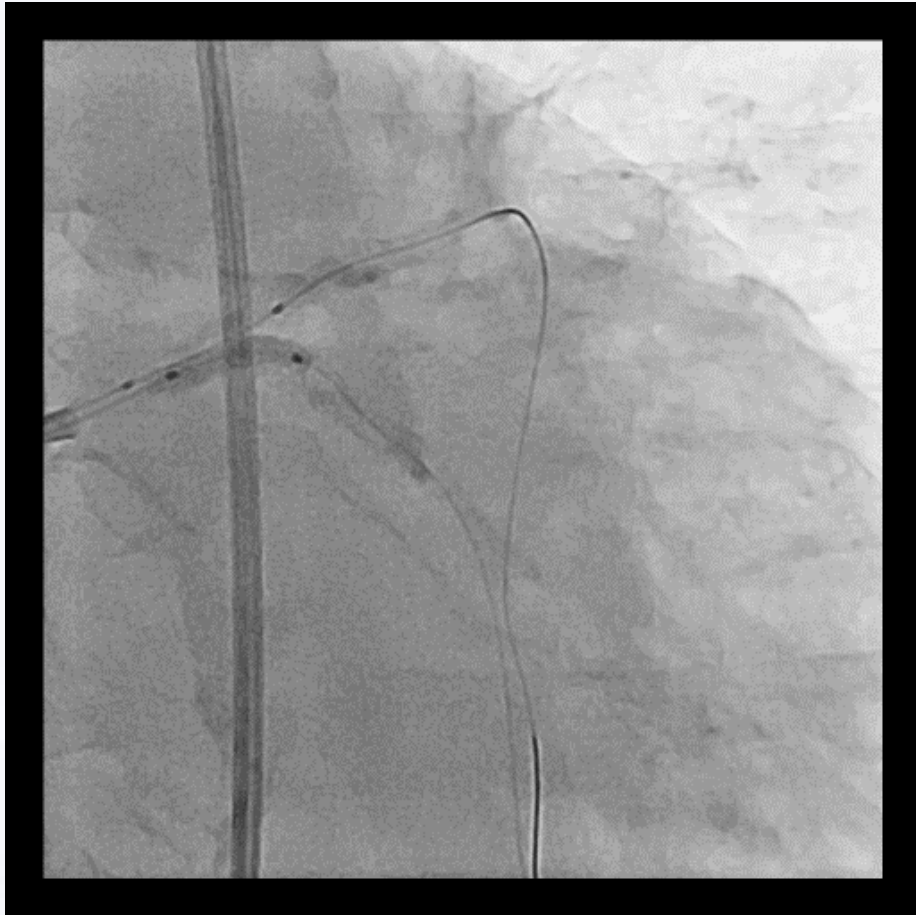
# LCX Wiring and Ballooning



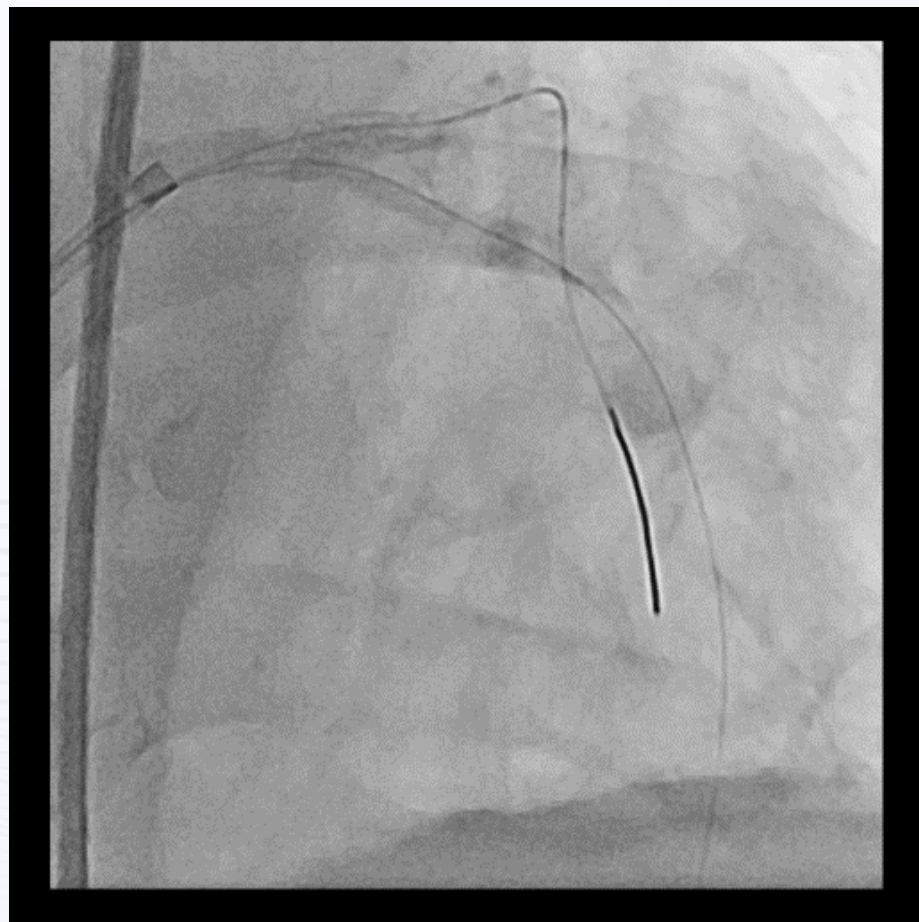
# LCX Stenting



# LCX Stent Crushed By LAD Balloon



# CAG



# LAD Pre-lesion Modification and LAD Stenting

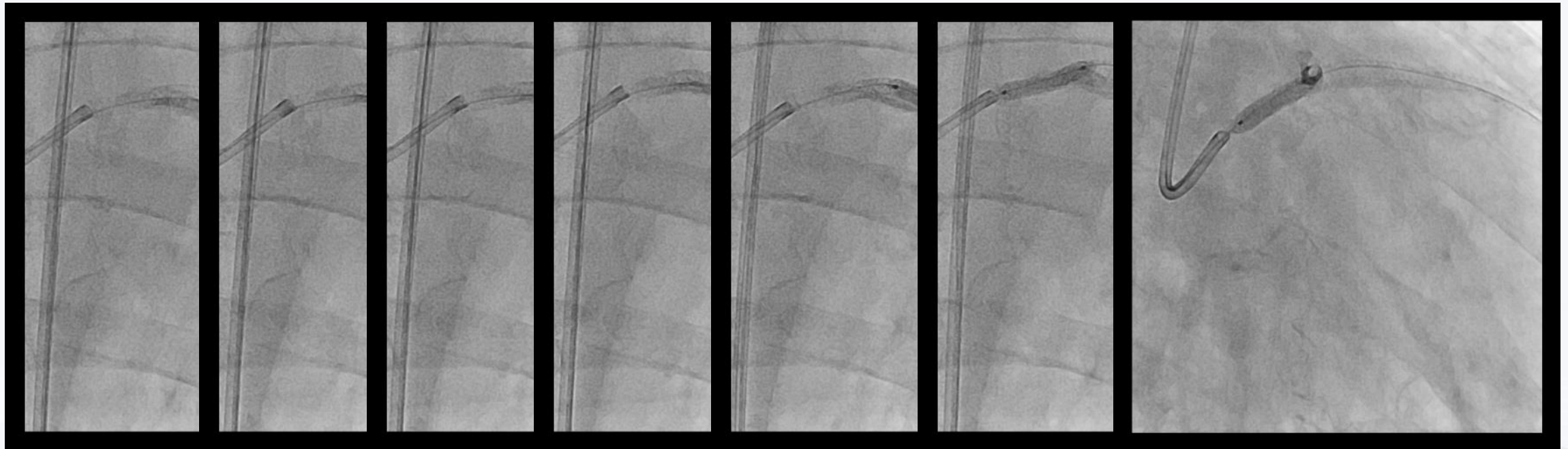


# CAG





# LAD Stent Optimization

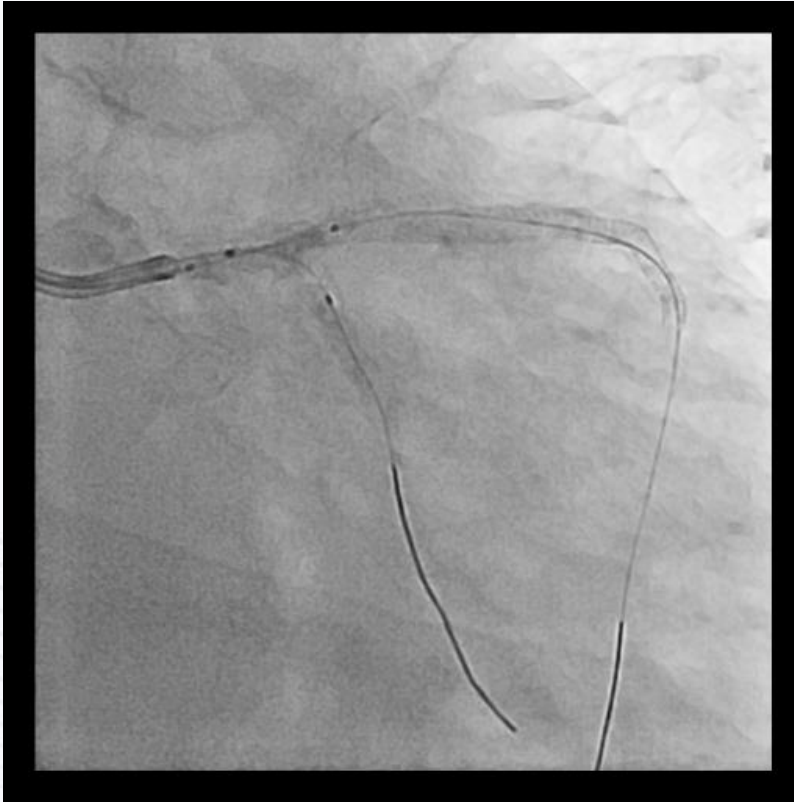
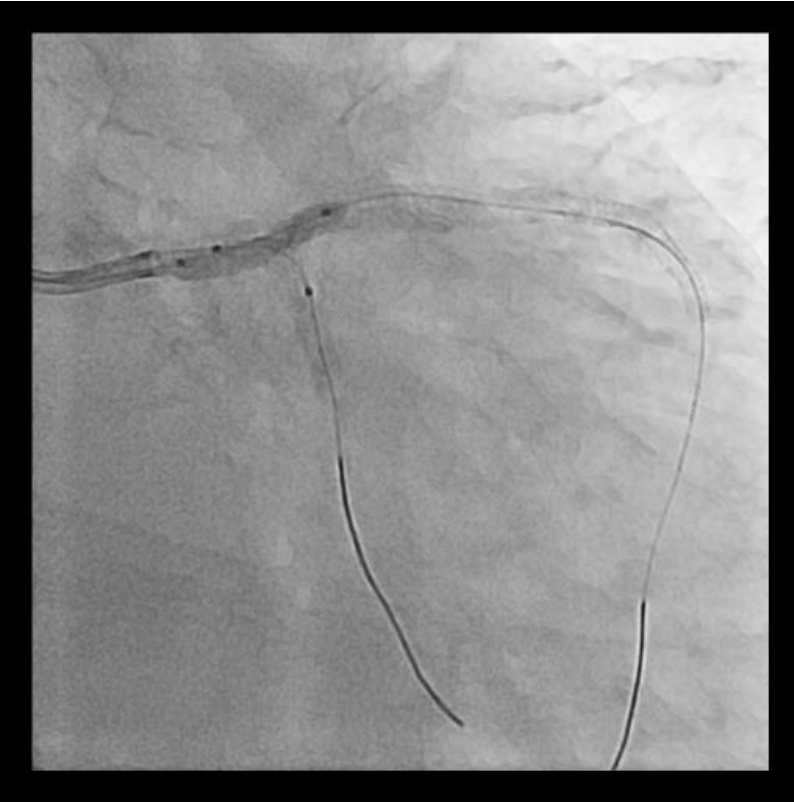
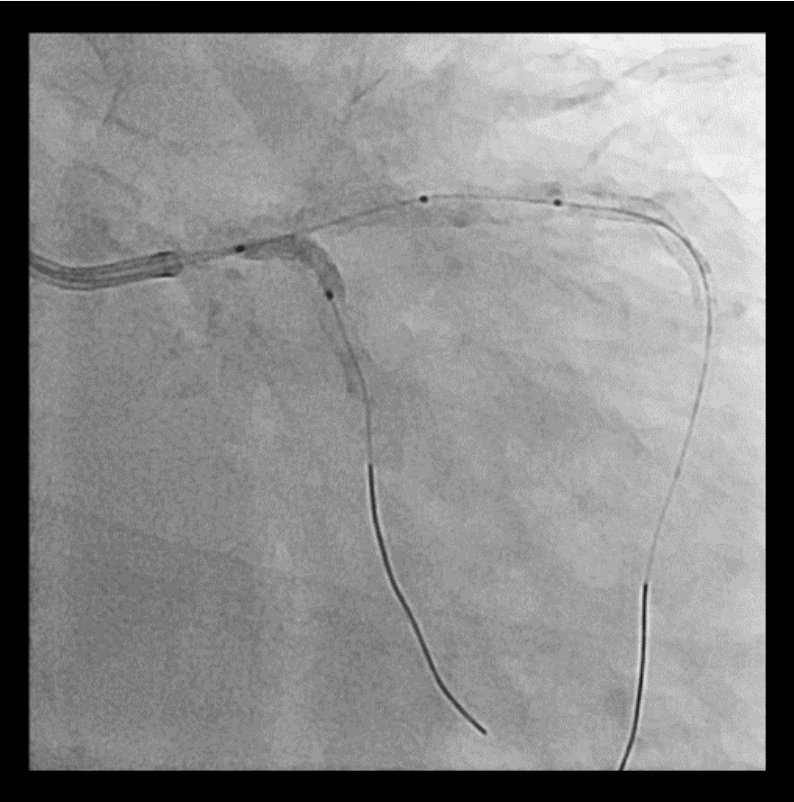


# LCX Rewiring and Balloon Delivery

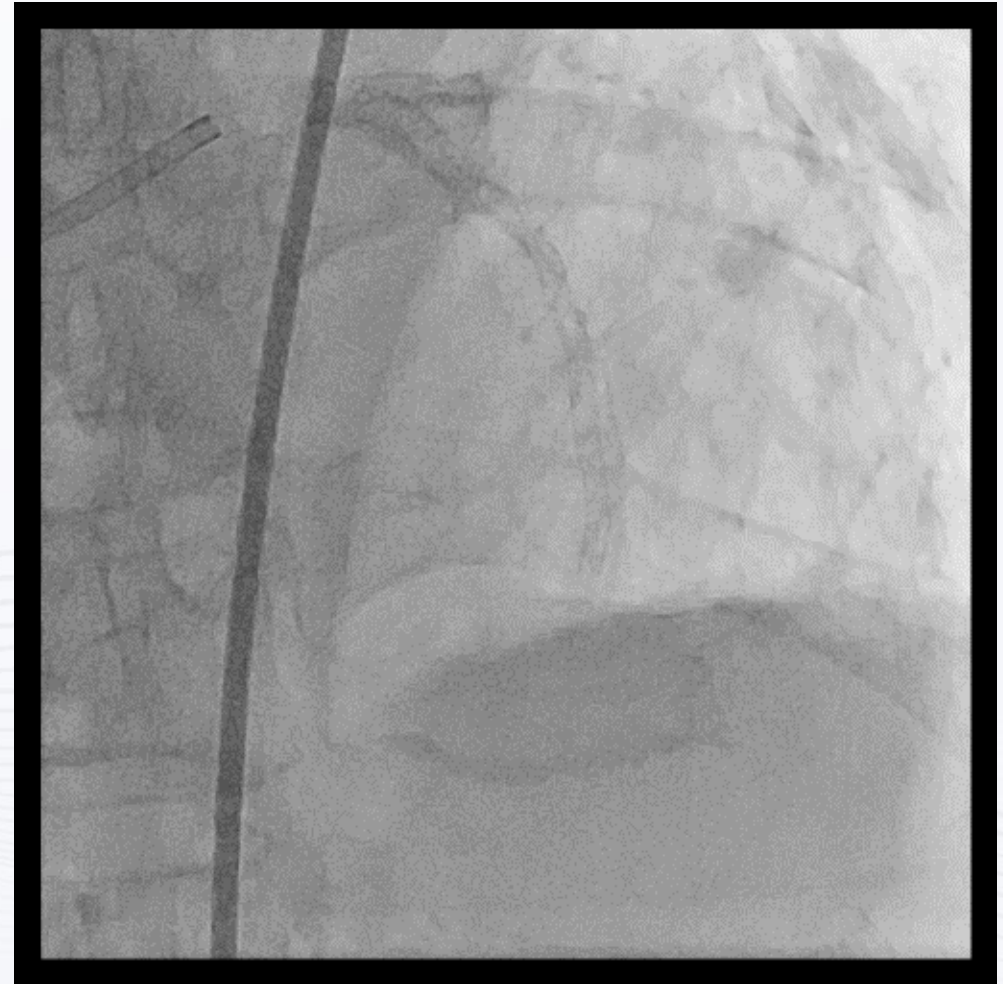
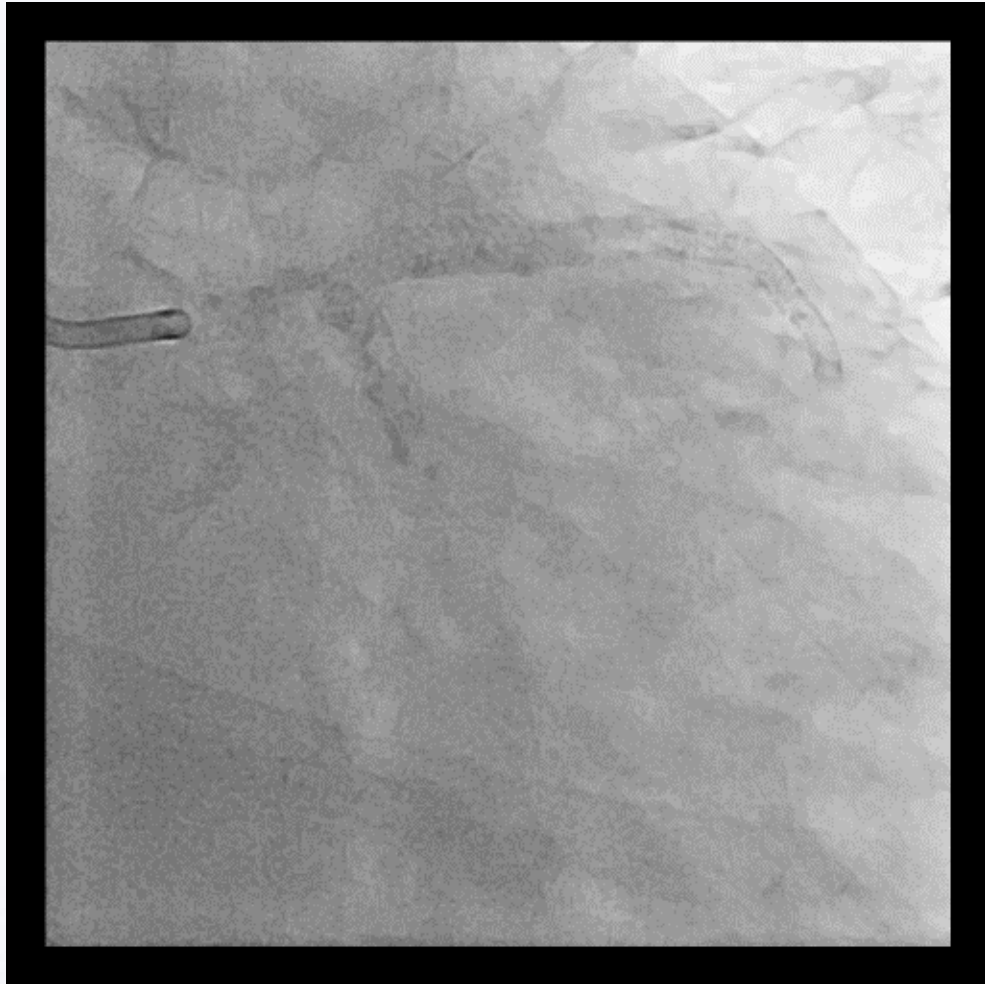


# LAD Anchoring and Sequential High Pressure

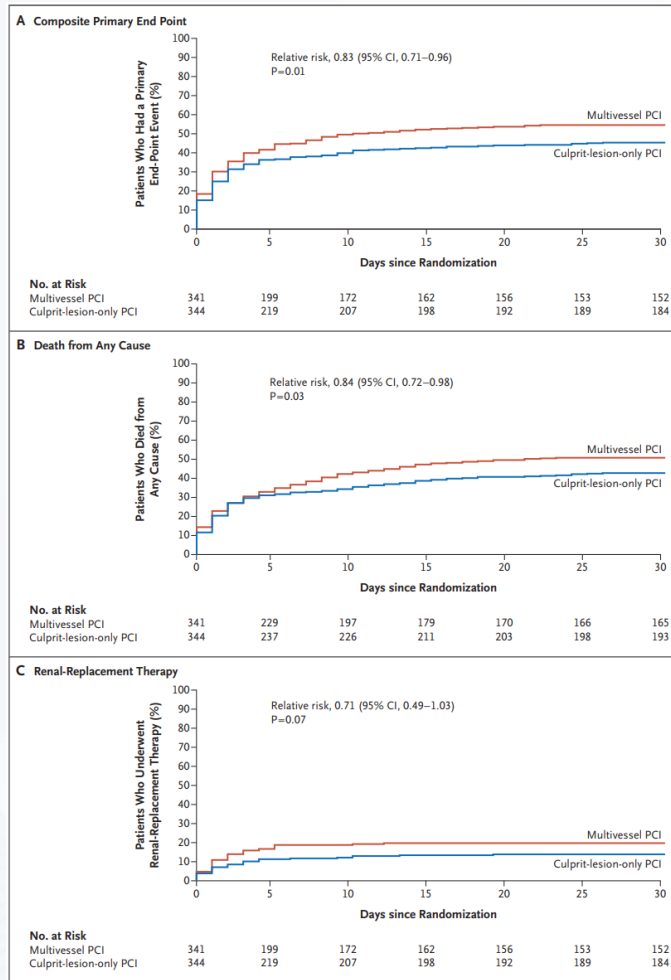
# Final Kissing



# Final Coronary Angiography



# Culprit Shock Trial



Mechanical Circulatory Support:  
28%

Heart Transplantation  
0.1%

Mechanical Ventilator  
81%

Mortality  
50%

# STEMI due to LM Culprit

**Table 1** Summary of left main STEMI trials

	Year	N	Mean age at presentation	Cardiogenic shock	PCI success	In-house mortality	30-day mortality	1-year mortality
Lee et al	2009	23	70.6 ± 12 years	24% (n=5)	100% (n=23)	8% (n=2)	N/A	N/A
Montalescot et al., GRACE registry	2009	627	70 (median age)	3.4% (n=59)	N/A	11% (n=69)	N/A	N/A
Pedrazzini et al., AMIS registry	2011	348	63.5 ± 12.6 years	12.2% (n=42)	N/A	10.9% (n=38)	N/A	N/A
Papalardo et al	2011	48	70 ± 12.5 years	45% (n=22)	92% (n=44)	21% (n=10)	N/A	10.5% (n=5)
Gagnor et al., The STEMI-Placet Registry	2012	38	67.7 ± 11.45 years	73.7% (n=28)	84.2% (n=32)	42% (n=16)	N/A	N/A
Parma et al	2012	58	67.3 ± 11.5 years	51.7% (n=30)	93.1% (n=54)	N/A	39.6% (n=23)	44% (n=25)
Vis et al., meta-analysis	2013	977	N/A	26% (n=252)	N/A	N/A	15% non-CS, 55% CS	N/A
Almudarra et al., BCIS registry	2014	784	67.3 ± 13.7 years	40% (n=314)	70.9% (n=510)	24.6% (n=193)	28.3% (n=222)	37.6% (n=295)
Yap et al., The Asia-Pacific Left Main ST-Elevation Registry (ASTER)	2017	67	64.2 ± 12.8 years	61% (n=41)	76% (n=51)	47.8% (n=32)	N/A	N/A
Liu et al	2018	372	63.4 ± 11.5 years	21.2% (n=79)	92.8% (n=343)	5.1% (n=19)	6.2% (n=23)	8.1% (n=30)
Zoghbi et al., CathPCI Registry	2018	434	62.9 ± 14.6 years	66.4% (n=288)	71.2% (n=309)	58% (n=252)	N/A	N/A

## Left Main Culprit In STEMI

**FREQUENCY** ~5%  
0.8 to 5.4% of STEMI patients surviving to the hospital

**CHARACTERISTICS**  
Older, History of coronary artery disease, Lower left ventricular ejection fraction, Cardiogenic shock, Cardiac arrest

**ECG FINDINGS**  
Sub-total occlusion (TIMI flow grade 2-3): ST elevation in aVR, Diffuse ST depression in multiple leads  
Total occlusion (TIMI flow grade 0): Diffuse ST elevation in anterior and lateral leads, Reciprocal ST depression in inferior leads

**TREATMENT**  
v/s, Increase utilization of PCI (class IIa) over CABG (class Ia), Limited evidence for the role of mechanical circulatory support

**OUTCOME**  
Up to 38% in-hospital mortality

**PROGNOSIS**  
Higher mortality risk in unprotected versus protected left main culprit, Three-fold increase in mortality risk with cardiogenic shock, Poor prognosis with low pre-PCI TIMI flow grade

# Left Main AMI with Cardiogenic Shock, How to Rescue?

- First above all, my cases are all happy endings. But, it does not happen in real world.
- Don't be panic.
- Prepare everything (call ECMO team).
- Patients can be collapsed before, during, and after procedure.
- Procedural success is not equal to patient survival. After PCI, intensive care is necessary. The recovery of LV could take longer time.
- If LV is not recovered, transplantation or LVAD should be considered.