# Emerging Trends in the Management of STEMI

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# What is STEMI

# Goal of Treatment in STEMI

- Ultimate goal is  to preserve myocardium from stunning, hibernation, necrosis and apoptosis.
- Preservation =immediate complete revascularization either by pharmacological or mechanical.
- Pharmacological revascularization always gives partial coronary flow. ie-TIMI-I or TIMI-II flow. Meanwhile myocardial dysfunction will develop with in 60 min.
- Particularly AWMI, RVMI and ALMI always jeopardize myocardium and hemodynamic in short time.

# Current Available options in STEMI

- Thrombolytics= Streptokinase, Urokinase, Tenecteplase.
- IV glycoprotein Receptor Blockers.
- Primary PTCA
- No other option.

# Limitation of Thrombolytics

- STK-WP- less than 3 hrs 60% reperfusion is only possible particularly in younger population age less than 45 with no DM, Smoking history.
- Urokinase-WP-less than 3 hrs 45% reperfusion.
- Tenecteplase-WP-less than 3 hrs 65% is possible.
- Minor and major bleeding complications are common in age above 50 years.

# Honey moon Period in STEMI

- First 30 min is a diamond hrs.
- First 60 min is a Platinum hrs.
- First 90 min is a golden hrs
- After  90 min, it can be fruitful or bitter.

# Complications in STEMI with Pharmacological management.

- Cardiogenic shock
- Pulmonary edema
- Mechanical complications like VSD, PMR, pseudo-aneurysm, LV FWR and MR.
- Arrhythmias: VT, VF
- Cardiac arrest

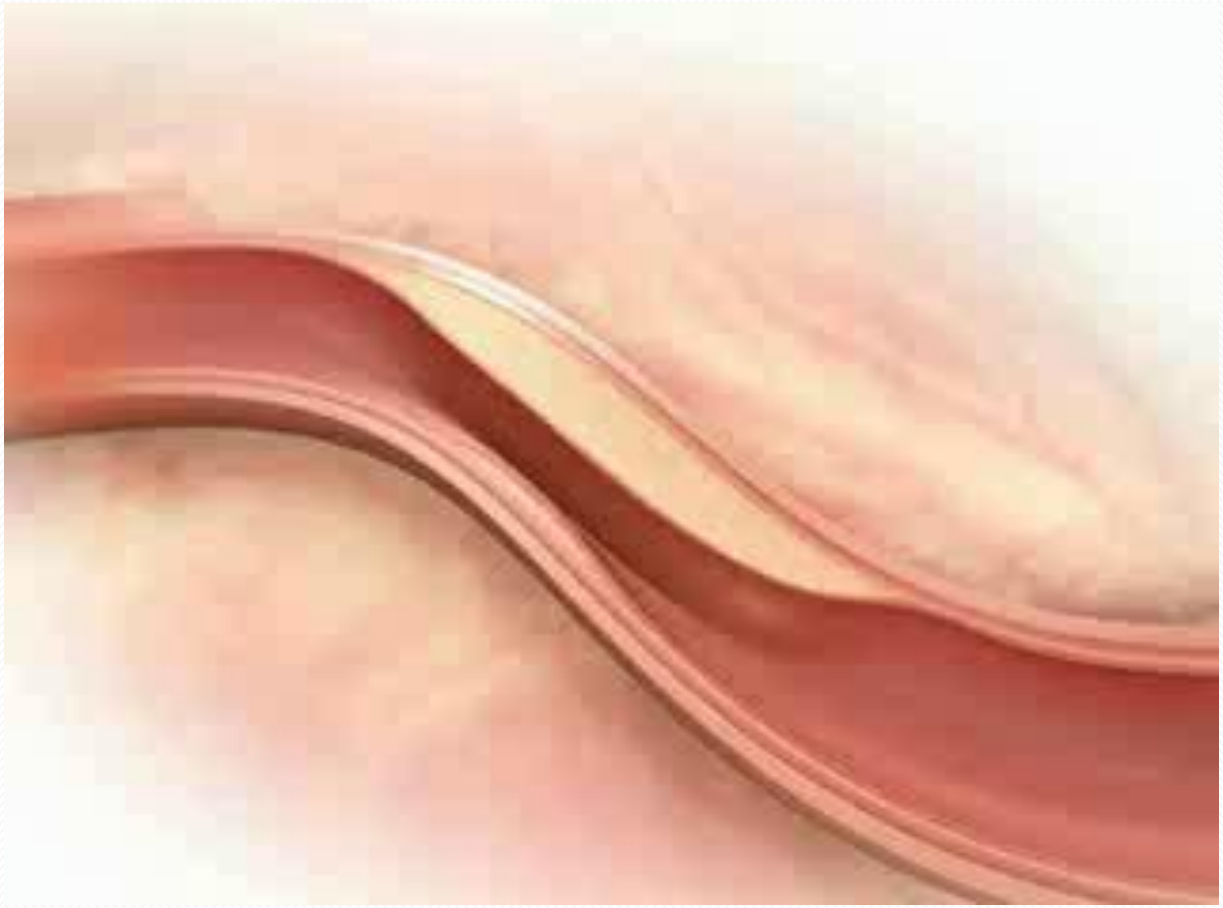
# When, what, how to do?

- If cath lab is near shift the patient immediately.
- If not, give Thrombolytics and anticipate the complications and if there is ongoing chest pain with persistently elevated cardiac bio markers shift at least now to cath lab.
- If cath lab is not possible for next 12 hrs, and if there is no chest pain, keep the patient in ICCU.
- Administer all cardiac protective drugs which includes ACEI, ARB, BBs, Antiplatelets, statins and flavenoids.

# What is the best in STEMI?

- Primary PTCA is the only and best possible option which would dramatically reduces morbidity and mortality.

# PTCA



# How to identify high risk STEMI

- Hypotension, Pulmonary edema, AKI, tachycardia
- LAFB and LBBB
- Severe LV dysfunction
- Highly elevated cardiac biomarkers, particularly cTnI.
- Uncontrolled HTN, DM and Dyslipidemia.
- Window period more than 6 hrs
- History of smoking and SCD

# What to do to prevent mortality in high risk STEMI during PTCA?

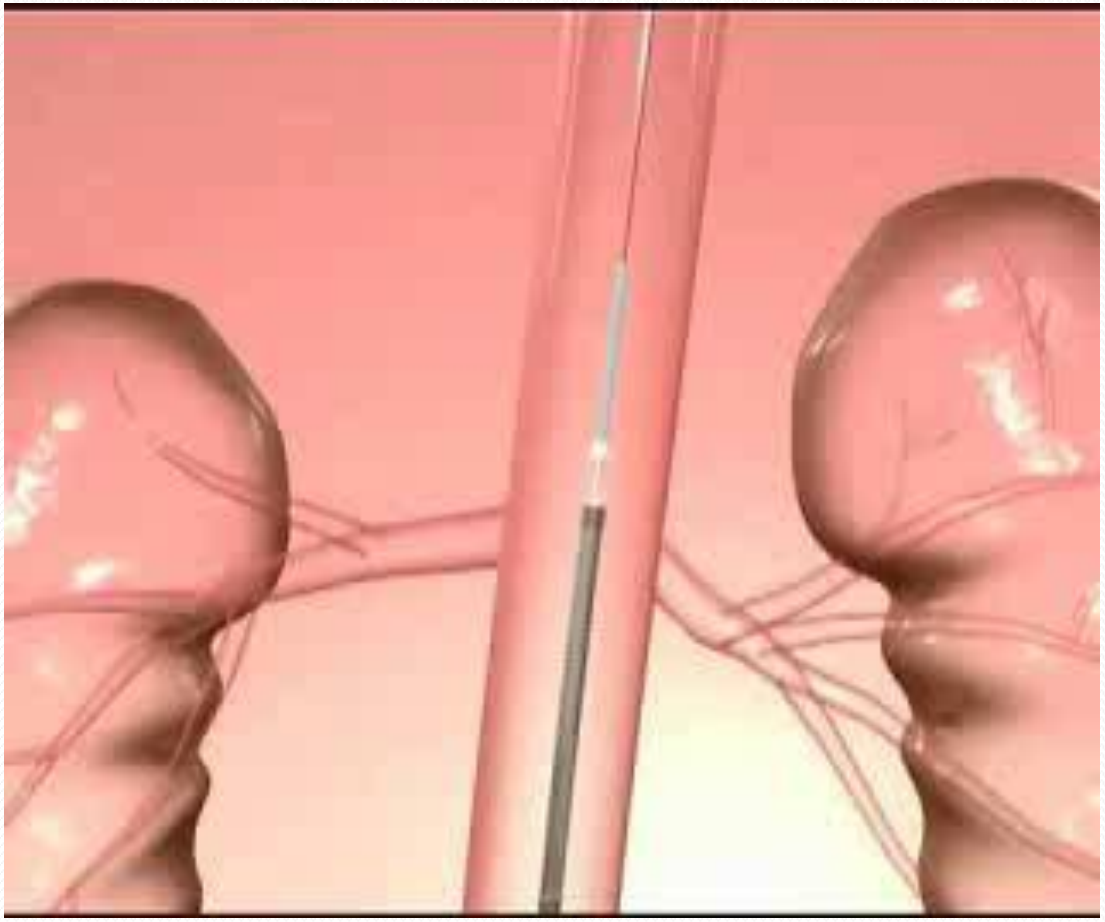
- Keep Temporary Pace Maker ready
- Supporting heart devices like IABP, and Impella
- Inotropes
- Always use GP2B3ARB and Direct thrombin inhibitors.
- Don't wait till the pressure drops to low.
- Assess completely and proceed cautiously in every steps.
- Always use thrombus extraction catheter to aspirate thrombus which will give ensure TIMI-III flow 100%.

# Nightmare during PTCA

- Slow flow: It means half work
- To tackle slow flow use intra coronary Antiplatelets, Dilzem , Verapamil , adenosine , nicorandil , and nitroprusside .
- It is must to use thrombus extraction catheter.
- Put IABP or Impella device.

# Use of IABP in STEMI

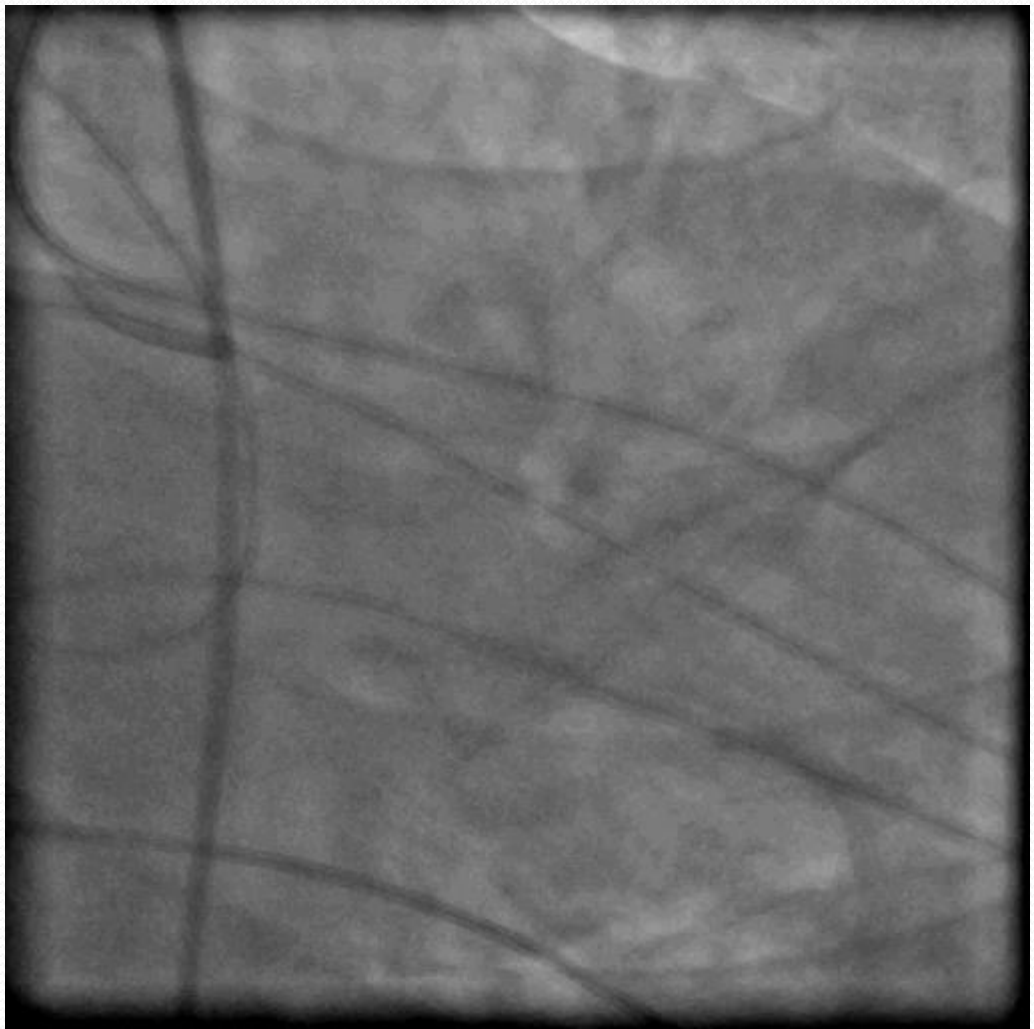
# Impella Device in STEMI



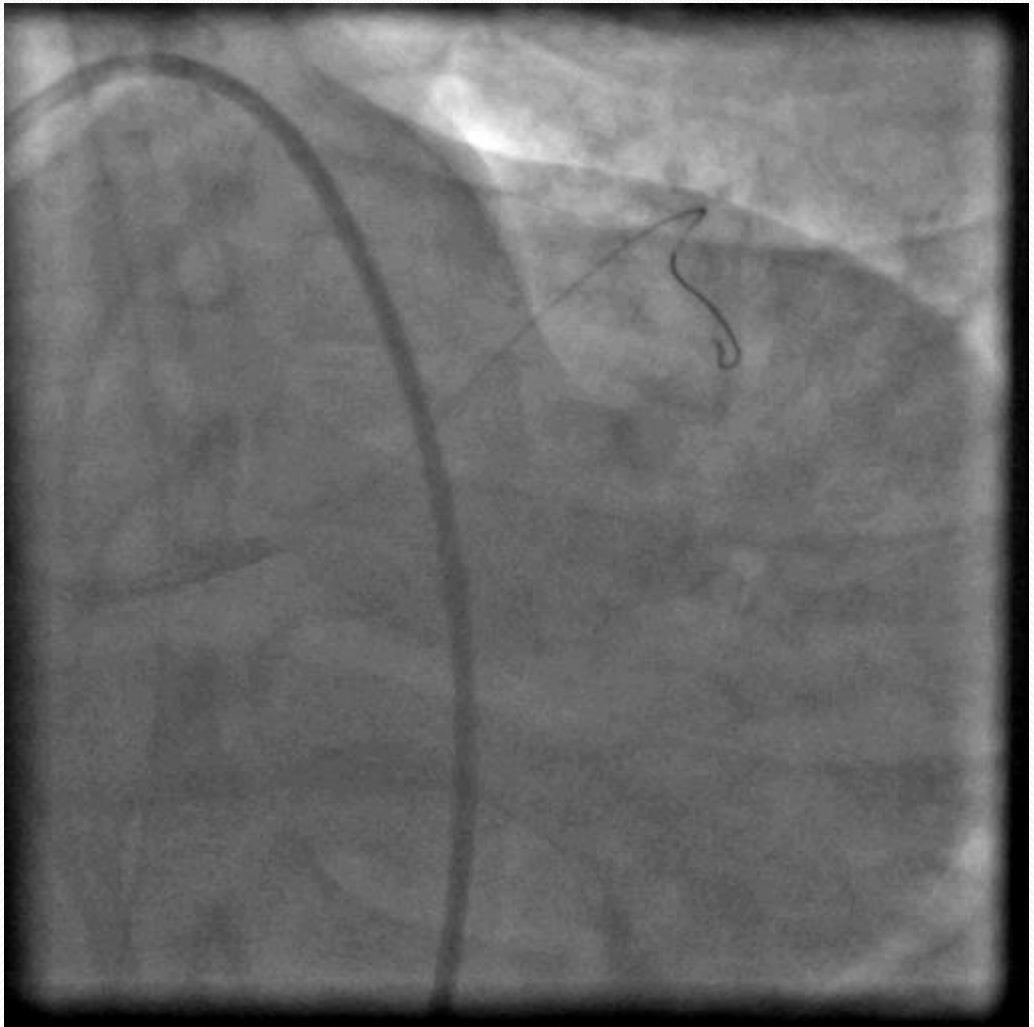
# Case-1,20 years old boy ACS/STEMI

- History : no DM, no HTN, occasional smoker and ethanolic.
- Complaints: chest burning since morning 9AM, previous night he had 2 pegs alcohol and arrived to hospital at 9-30PM on one Sunday night.
- 9-35PM ECG was normal except peak T wave in V1-V4.
- 9-40PM Patient collapsed with VT and VF.
- Immediately cardioverted and given 5lakhs unit UK and shited to cath-lab at 10-15PM.

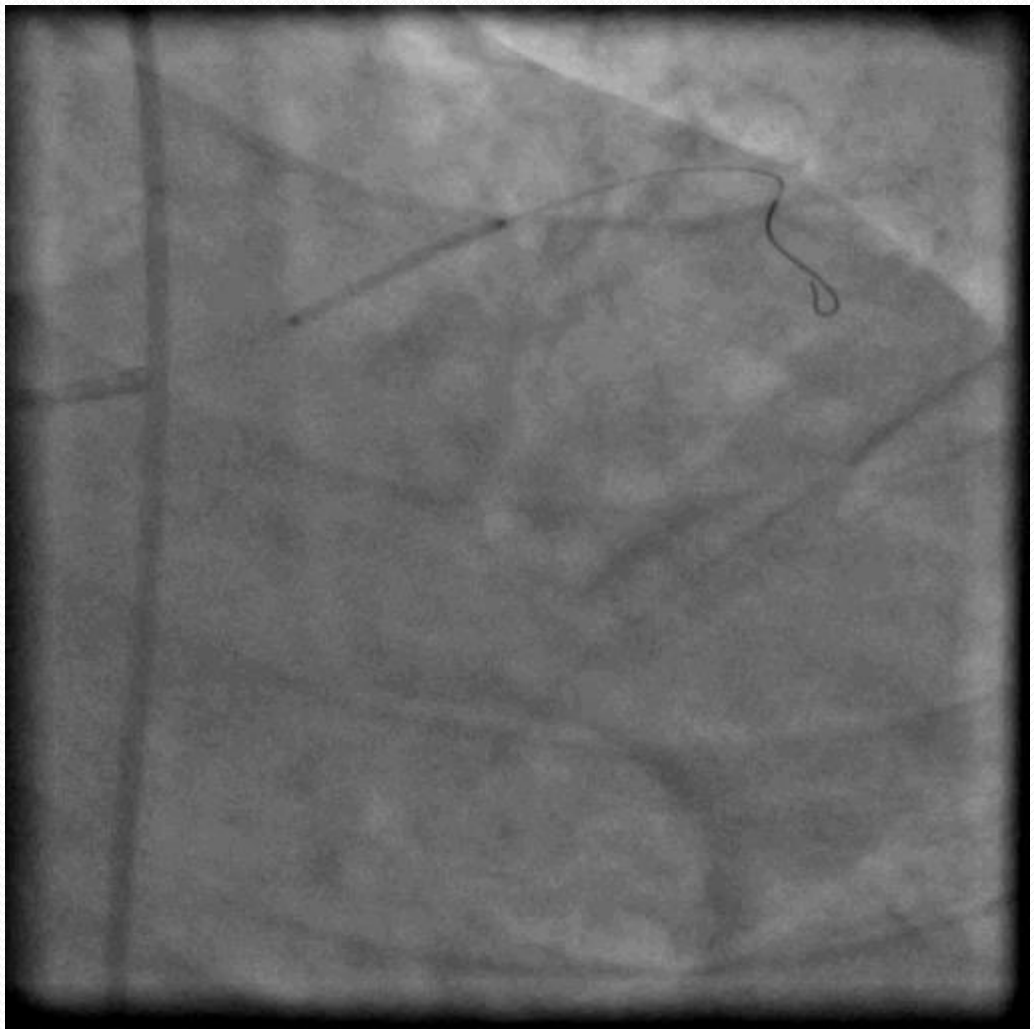
# Left coronary artery angiogram-LAD-Proximal-99% thrombotic lesion



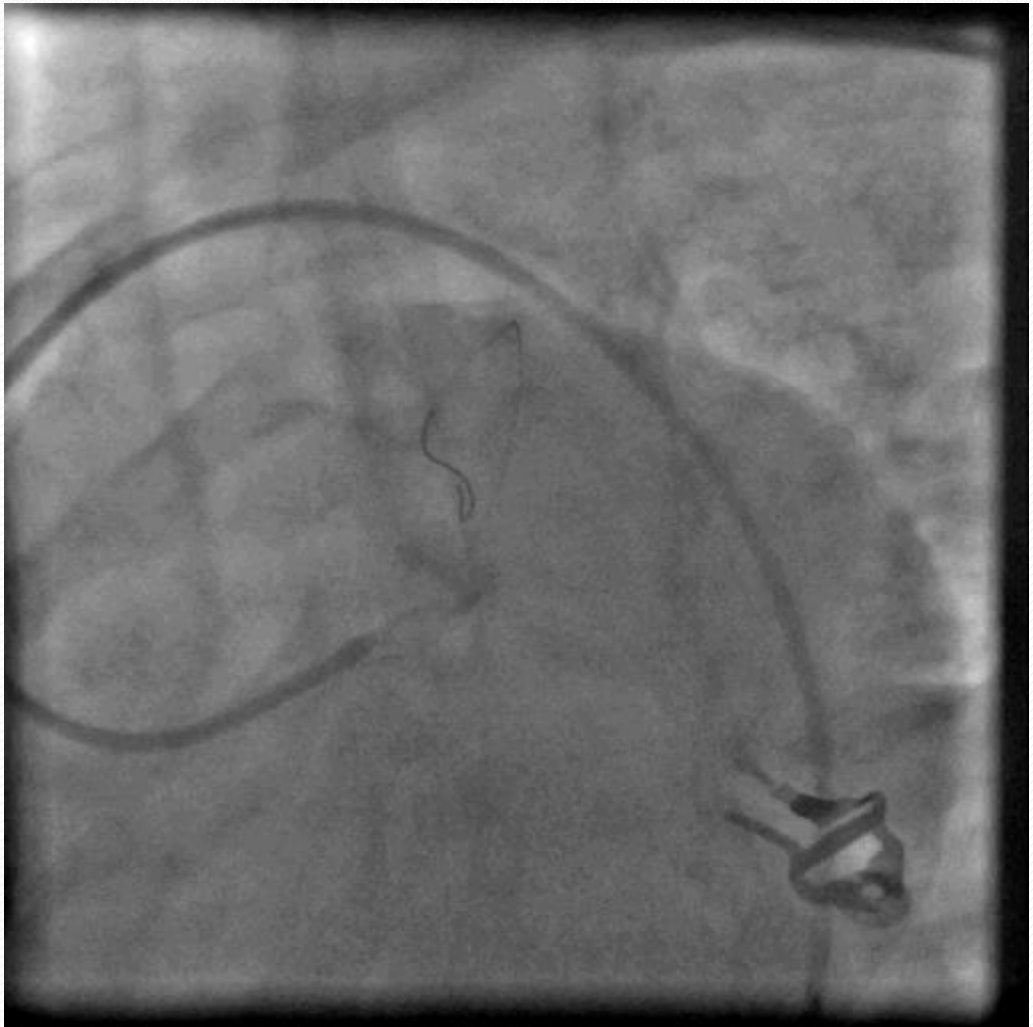
# LAD was wired with BMW guide wire after IC integrillin



# Implanting stent in LAD Proximal



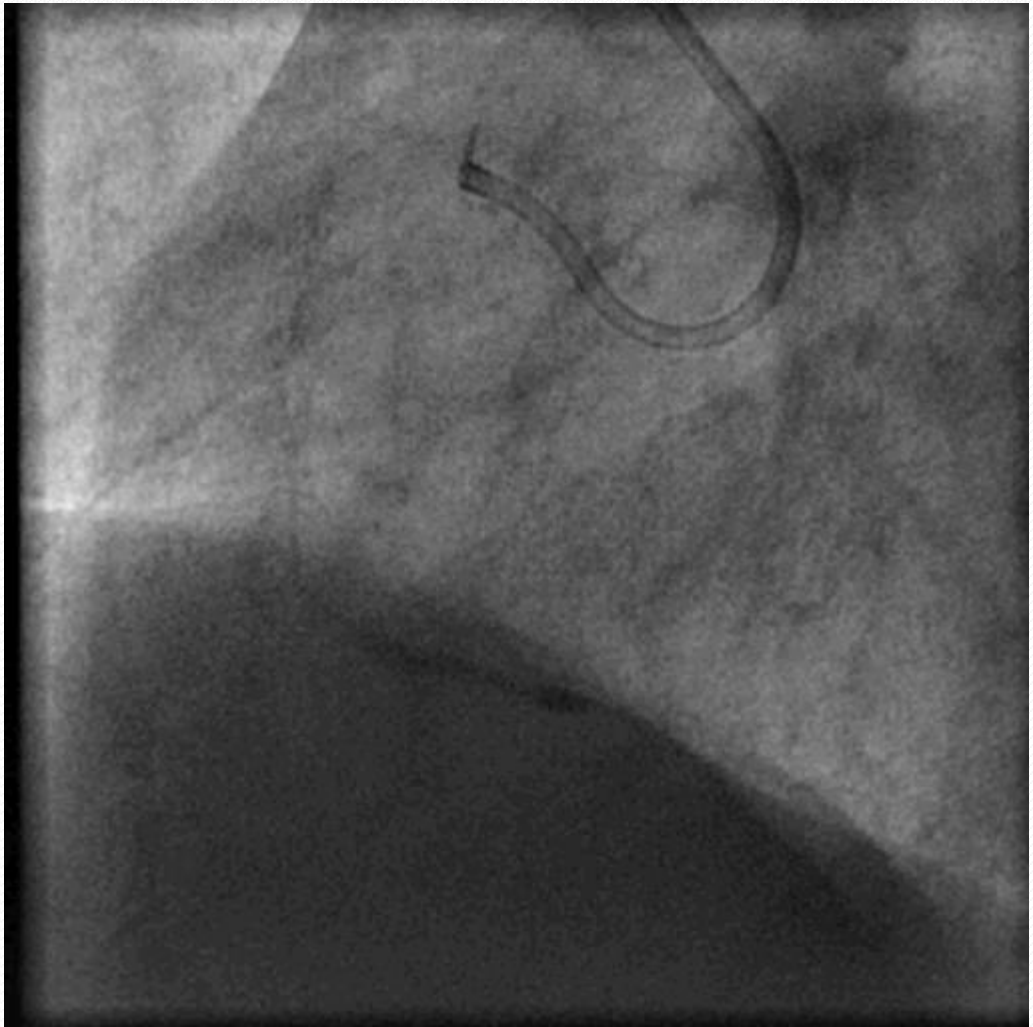
# After LAD stenting



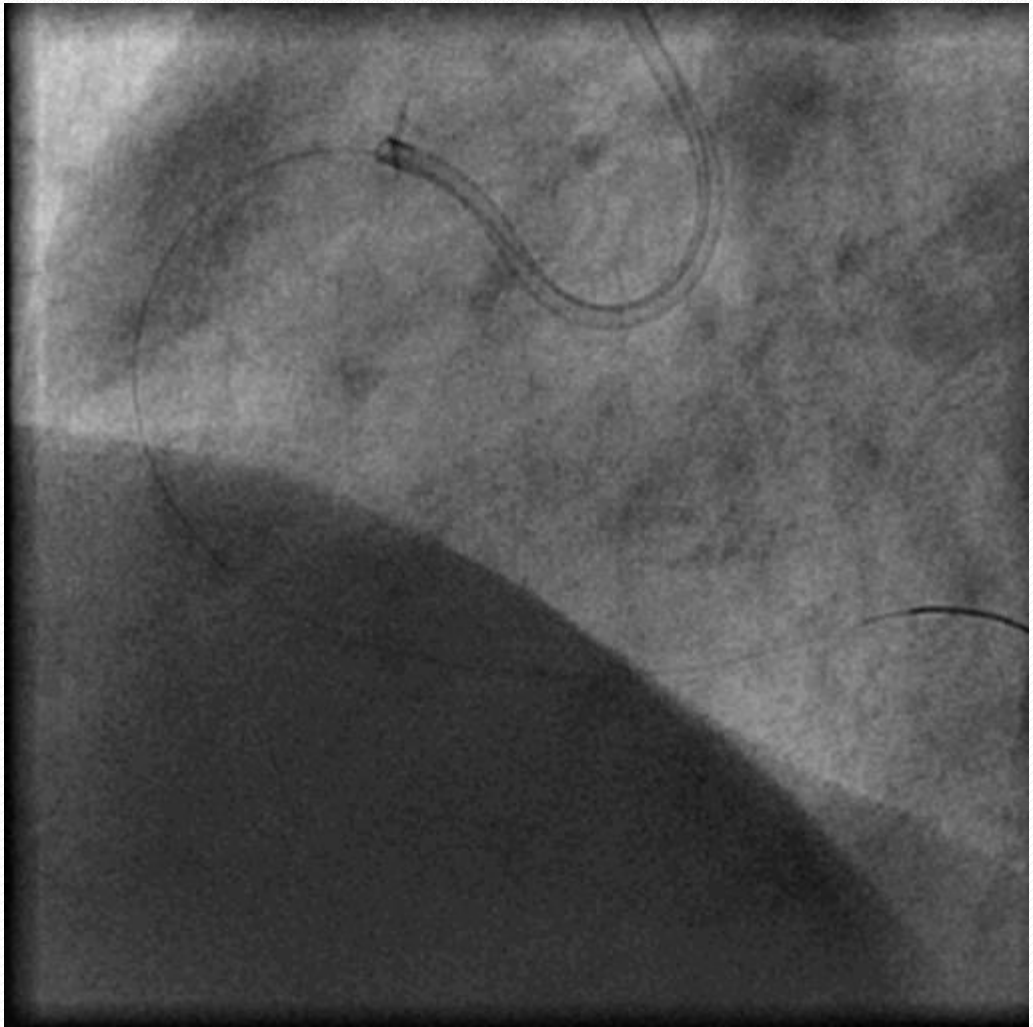
# Case-2, 56 yrs old chain smoker with STEMI-IWMI

- 56 yrs old man came to emergency at 7 PM with the complaints epigastric burning since morning 10 AM after breakfast.
- He had history of chronic smoking 2 packs/day for 30 years , occasional ethanolic and HTN for 15 years.
- ECG- showed ST elevation in II,III,aVF, and ST depression in V1-V3.
- 2D echo-EF-45%.
- CtnI positive,(2.5ng/dl)
- CAG-RCA mid total occlusion.
- Patient was shifted to cath lab by 11-00PM.

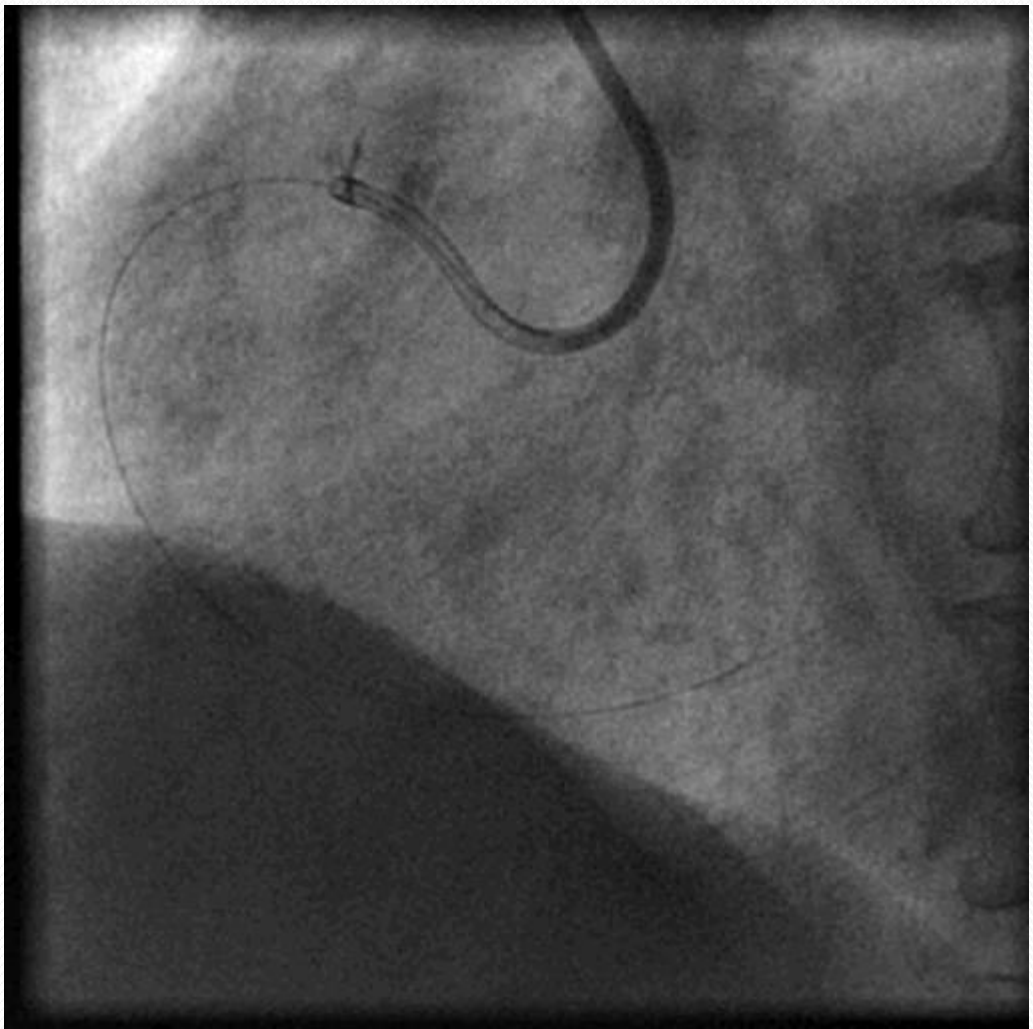
# RCA-mid Total occlusion



# RCA was wired with BMW guide wire 0.014



# Distal flow after thrombus extraction



# After PTCA of RCA mid to Distal

# Post PTCA management

- Patient was given IV for intergrillin infusion for 24 hrs.
- Discharged on 3 rd day  with stable condition.

# Home taking treatment method points

- Early intervention under expert hands
- Important to use cardiac devices in high risk conditions.
- Anticipate the complications and communicate properly with the patient's attenders.
- Must weigh risk and benefit ratio in proper way.
- Aggressive approach will not help the patient.

# Thank you for your kind attention