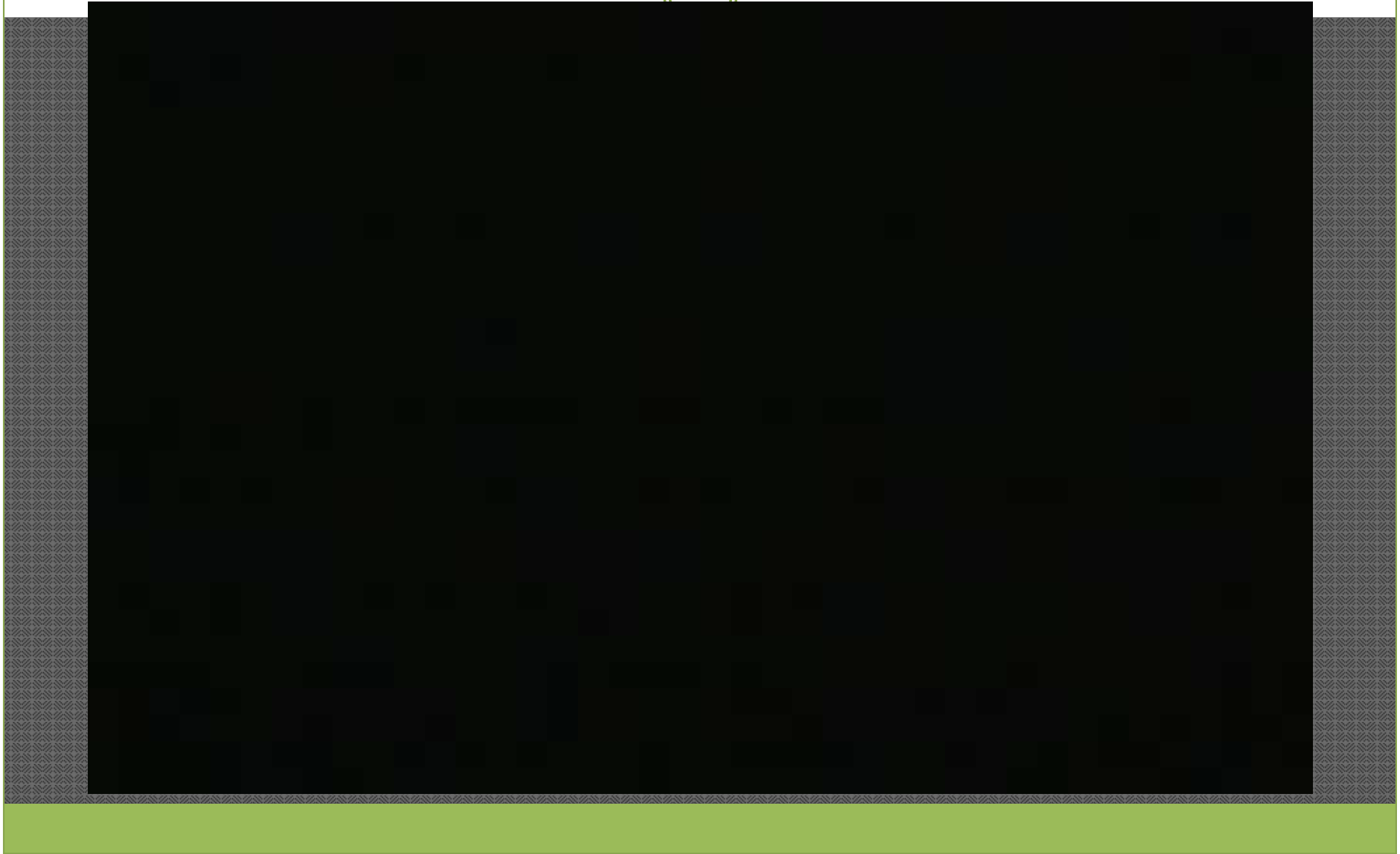


Complications in ACS with Primary PTCA



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SENIOR INTERVENTIONAL CARDIOLOGIST,

Progression of Atherosclerosis



PTCA technique



**Percutaneous
Coronary
Intervention**

A 3D anatomical model of a human heart is shown, with the coronary arteries highlighted in red and blue. The text 'Percutaneous Coronary Intervention' is overlaid on the heart in a bold, white font with a black outline. The background is a light brown, textured surface.

ACS- Its Complications



**MECHANICAL- VSR, PMR, PSEUDO ANEURYSM
ELECTRICAL-ARRHYTHMIAS, AVB
HEMODYNAMICS- CARDIOGENIC SHOCK
FOCAL MYOCARDIAL- MYOCARDIAL STUNNING,
HIBERNATION, EDEMA**

Mechanical Complications



- VSR- occurs between 3-7 days after MI
- PMR- occurs between 2-7 days
- Pseudo aneurysm- occurs after one week.
- Treatment: inotropes, IABP, TPI, vasodilators
- Prognosis: worst with PMR, VSR, and aneurysm.

Electrical Complications



- Non fatal Arrhythmias: Reperfusion arrhythmias, occasional VPC, junctional rhythm, 1st degree AVB, 2nd degree Mobitz type-I.
- Treatment: Observe and treat.
- Fatal Arrhythmias: VF, VT, T wave alternans,
- Treatment: DC shock, Anti Arrhythmic drugs, like amiodarone, lidocaine, adenosine, etc

Hemodynamic Complications



- Cardiogenic Shock: Tachycardia, urine out <30 ml/hr,
- Persistent hypotension for >30 min, Less than SBP-80mmhg.
- Bilateral lungs crackles and rales
- Pulmonary edema
- Saturation <85%
- Severe LV dysfunction

Myocardial dysfunction



- Myocardial stunning, hibernation, edema, increased level of hCRP, TNF-alpha, IL-1, IL-6, PAI-1, cardiac troponin level, CD-40 ligand, and BNP
- Effects of myocardial dysfunction: slow flow, no flow and acute stent thrombosis.
- Treatments: ACEI, Statins, Antiplatelets, anticoagulants, inotropes, aldosterone receptor blocker, IABP, Impella device, and GP2b3a Inhibitors.

When to intervene in ACS?



- In STEMI- door to ECG in 15 min.
- Door to thrombolytic in 30 min.
- Door to balloon in 60 min.
- Primary PTCA in 90 min
- On going chest pain,
- Persistent STE
- Viable myocardium in the culprit vessel supplying area.

When not to intervene?



- Cardiogenic shock with WP more than 24 hrs
- ECG- T wave variant
- Fresh RBBB and LBBB with shock
- Increased creatinine with shock
- Hba1c more than 9
- Arrhythmias and shock
- Where the effective , skilled and experienced team is not available.

SCD- male with STEMI-WP 3 days



05/15/2010 06:26:06 AM

Rx:
Dx:

Mr. V.D. Simon 48/male

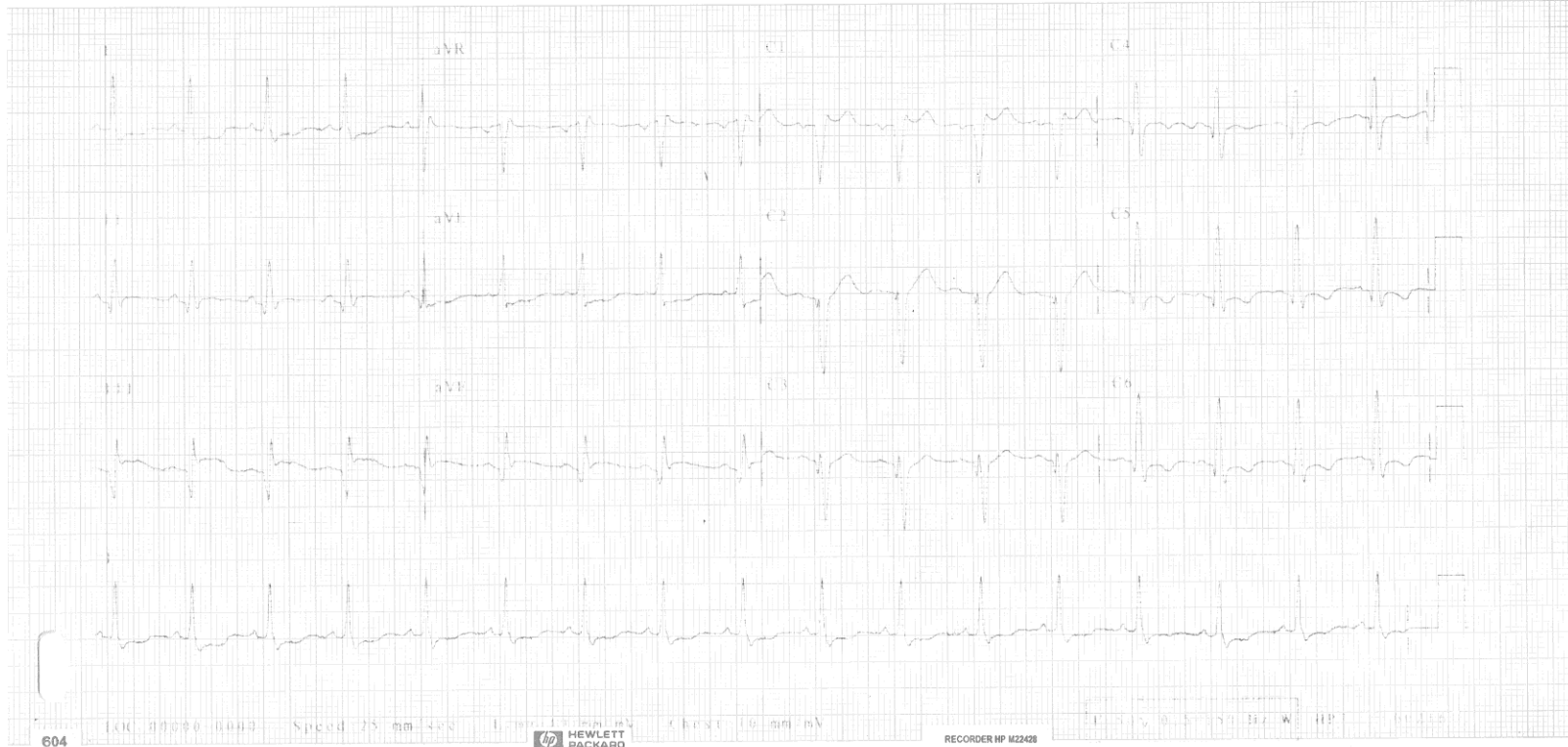
BP:

Dept:
Room:
Oper:

Rate 101
PR 150
QRSD 127
QT 321
QTc 416

Requested by:

--AXIS--
P 52
QRS 26
T 130

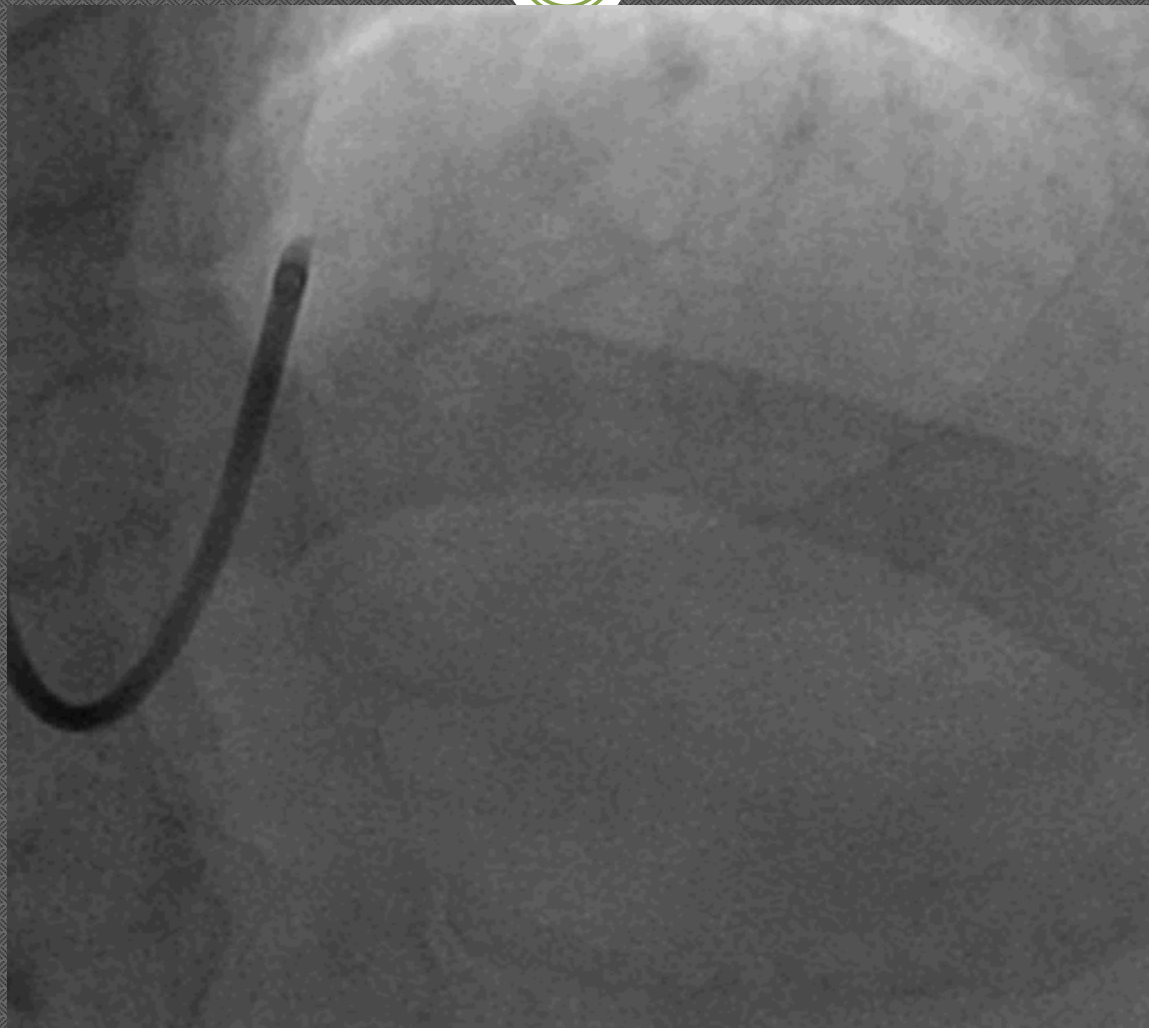


Case -1, 63 yr/male STEMI, AWWMI

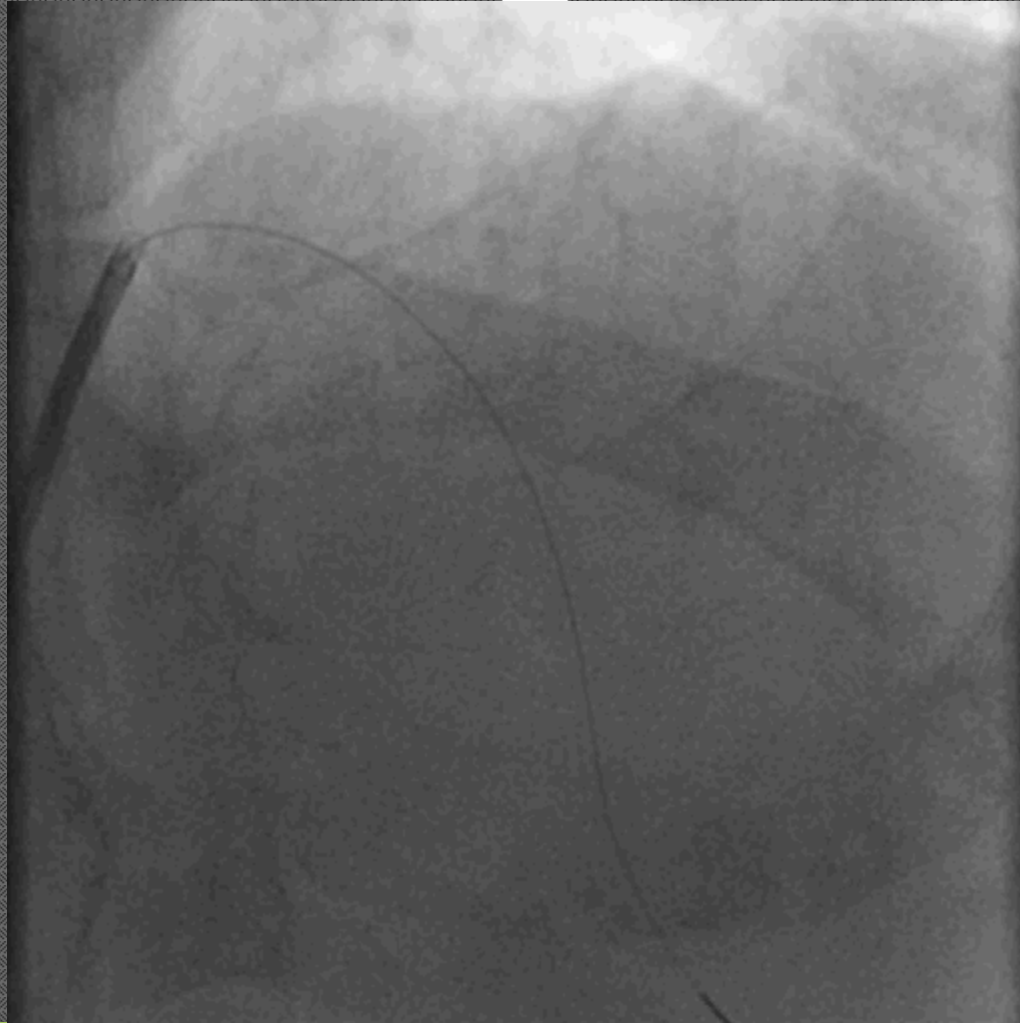


- History: DM for 20 yrs, HTN-20 yrs, not on proper treatment.
- ECG- ST elevation in V1-V5 more than 10mm
- HR-105/min, O2-95%, RR-24/min, lungs- clear, SBP-100mmhg, RBG-75 mg/dl, Cr-3.5/mg/dl,
- WP more than 8 hrs.
- On going chest pain is present.

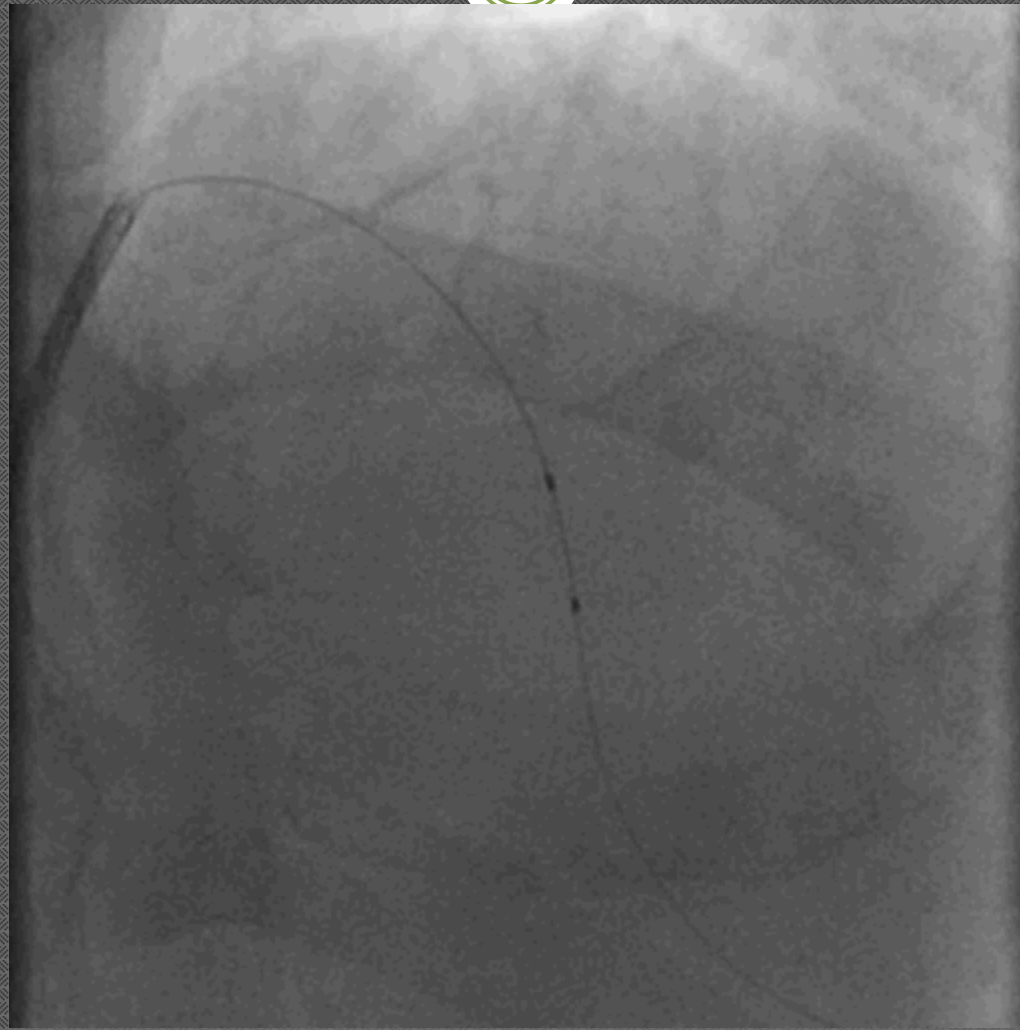
LAD- 100% occlusion



LAD wiring only with fluoro



LAD wiring with predilatation



Deployment of Stent



Post Dilatation inside stent



Final result of LAD stenting



Case-2, 32/male, No DM, No HTN



- Came on 3rd day after chest pain.
- BP-110/80mmhg, HR-110/min,
- Lungs- clear, O₂-96% at room air,
- ECG-ST elevation in V1-V5.
- Echo-45%, with moderate LV dysfunction.
- C/O- weakness, sweating, persistent chest discomfort, nausea and palpitation.

ECG- ST elevation in V1-V5

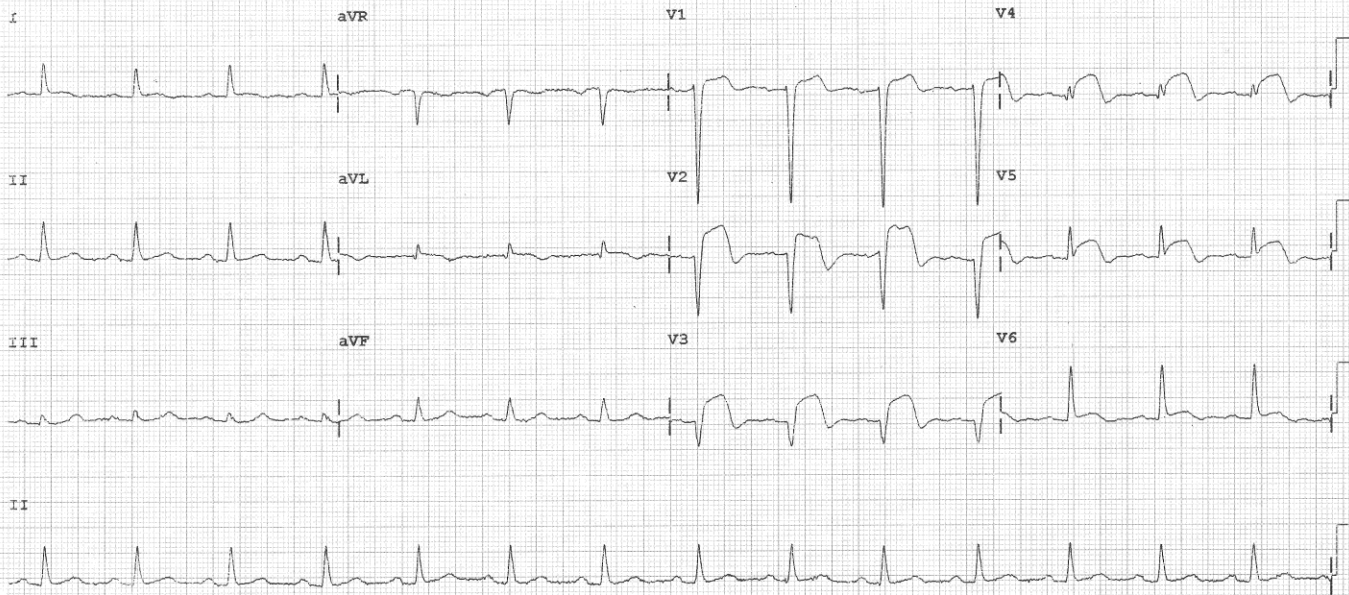
1/9/2010 7:04:48 PM
Unknown

AGE IS NOT ENTERED, ASSUMED TO BE 50 YEARS OLD FOR PURPOSE OF ECG INTERPRETATION
Rate 85 SINUS RHYTHM.....normal P axis, V-rate 50- 99
PR 192 ANTEROLATERAL INFARCT, ACUTE.....Q >35mS, ST >0.20mV, V2-V6
QRSD 83
QT 368
QTc 438

--AXIS--
P 59
QRS 46
T 85

- ABNORMAL ECG -

Unconfirmed Diagnosis



Dev: Speed: 25 mm/sec Limb: 10 mm/mV Chest: 10 mm/mV 50~ 0.5- 40 Hz W PH080A P?

HEWLETT
PACKARD

REORDER HP M2242B

2nd ECG before PTCA



7/13/2011 10:39:06 PM

AGE IS NOT ENTERED, ASSUMED TO BE 50 YEARS OLD FOR PURPOSE OF ECG INTERPRETATION
Rate 106 . SINUS TACHYCARDIA.....V-rate> 99
PR 136 . CONSIDER ANTERIOR INFARCT.....Q >30ms in V4
QRSD 86 . ABNORMAL T, PROBABLE ISCHEMIA, ANT-LAT LEADS.....T <-0.50mV, I aVL V2-V6
QT 368 . ARTIFACT IN LEAD(S) I,II,III,aVR,aVL,aVF
QTc 489

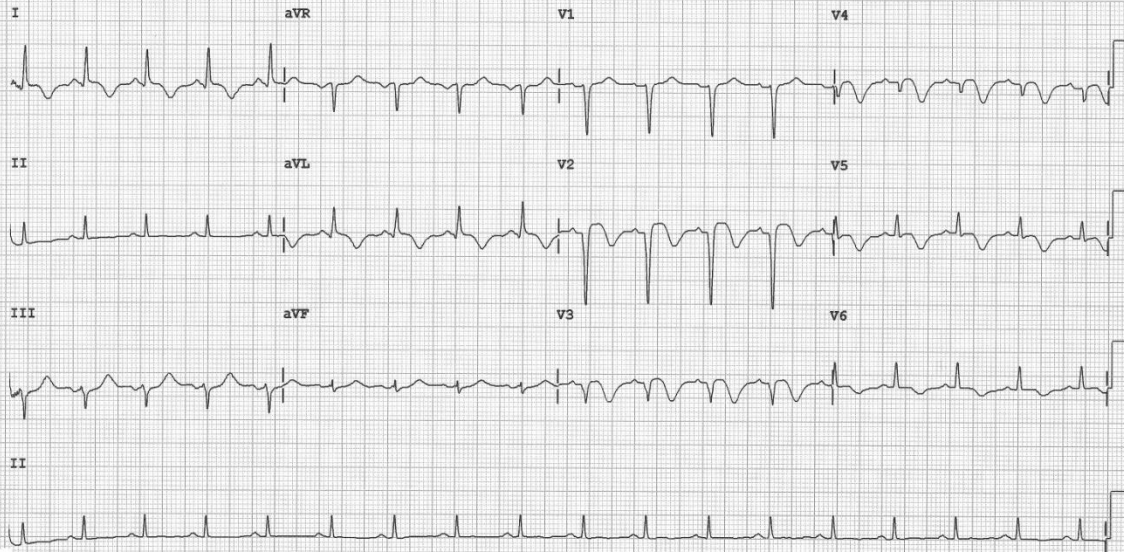
Hr. Adaviraju

MR: 20110700913 IP: 201103173
P Name: Mr. ADAVIRAJU
Dr Nm: Dr. A.M.Thirugnanam
A Dt: 13/7/2011 Age: 35 YEARS Sex: M

--AXIS--
P 42
QRS 3
T 150

- ABNORMAL ECG -

Unconfirmed Diagnosis



Dev: Speed: 25 mm/sec Limb: 10 mm/mV Chest: 10 mm/mV

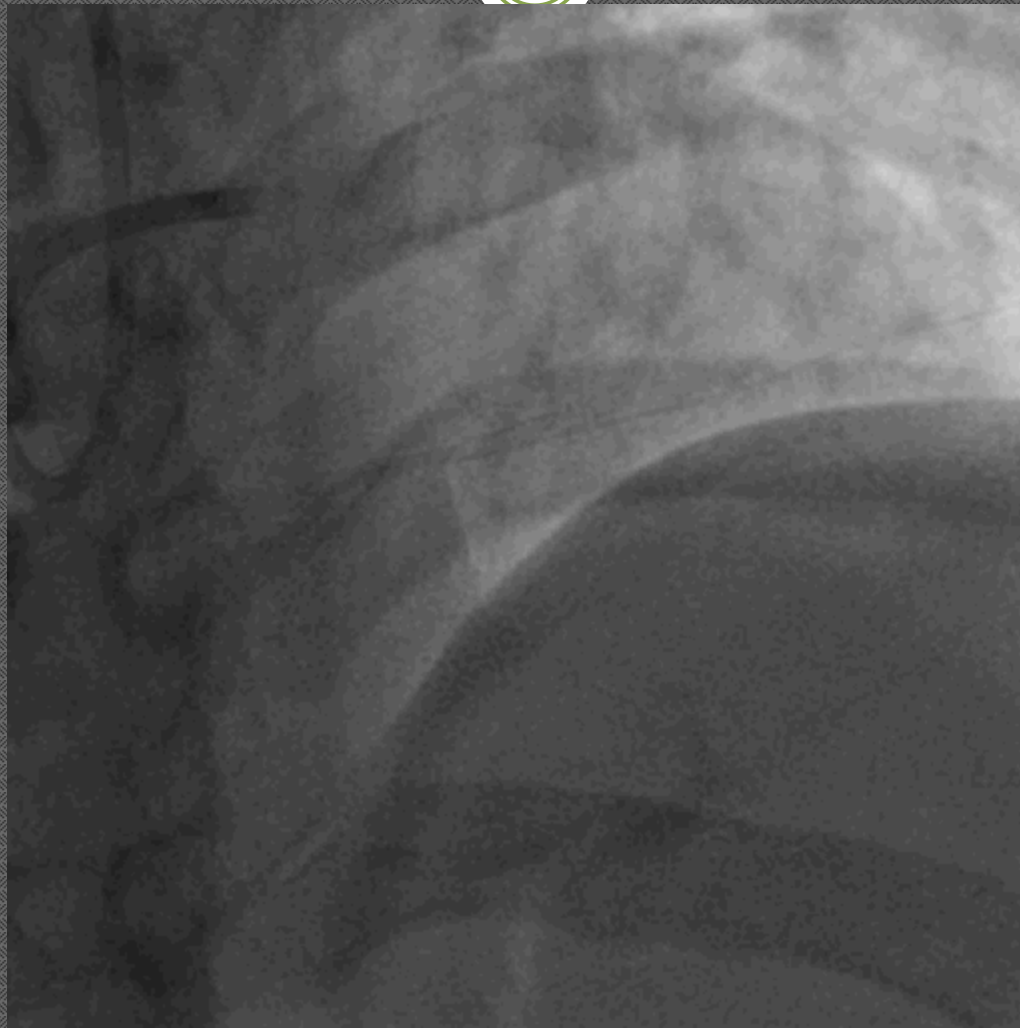
F 50~ 0.5~ 40 Hz W PH080A P?

007

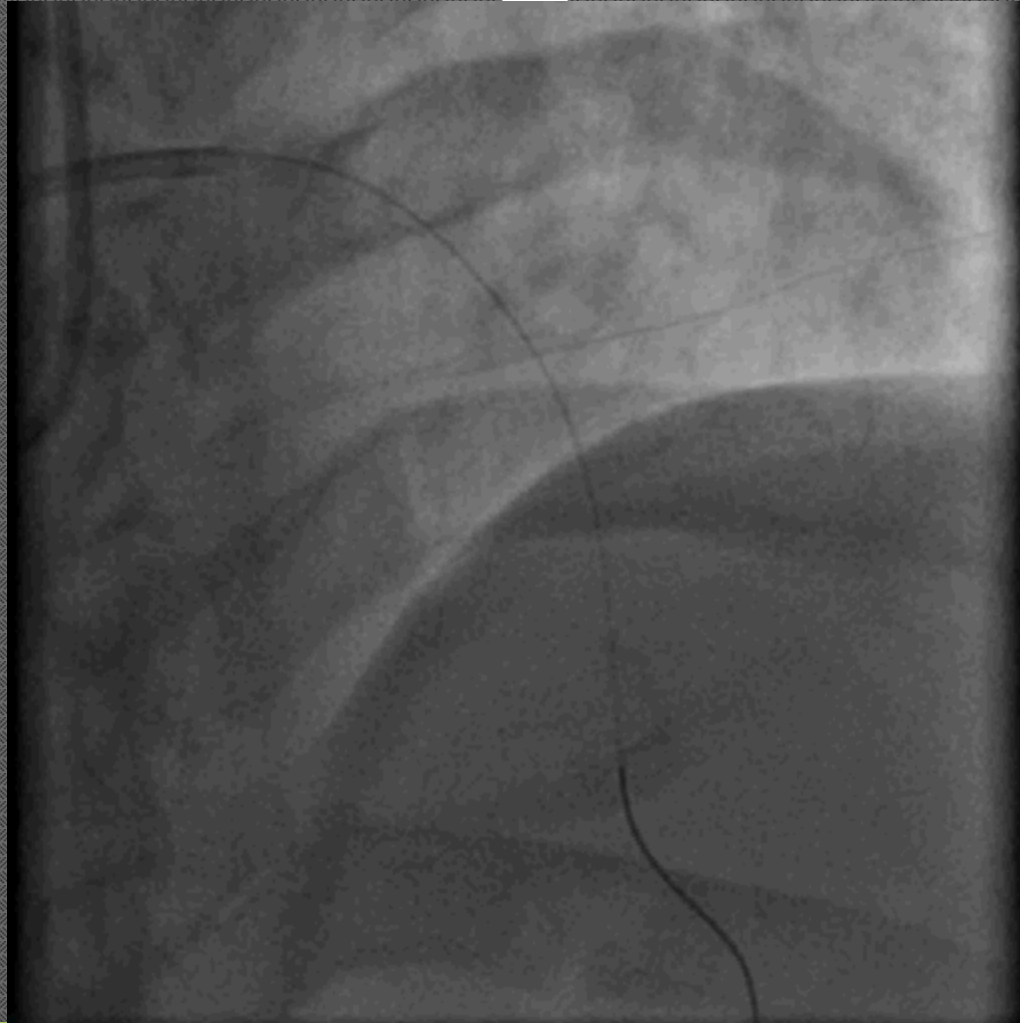
PHILIPS

REORDER # M2483A

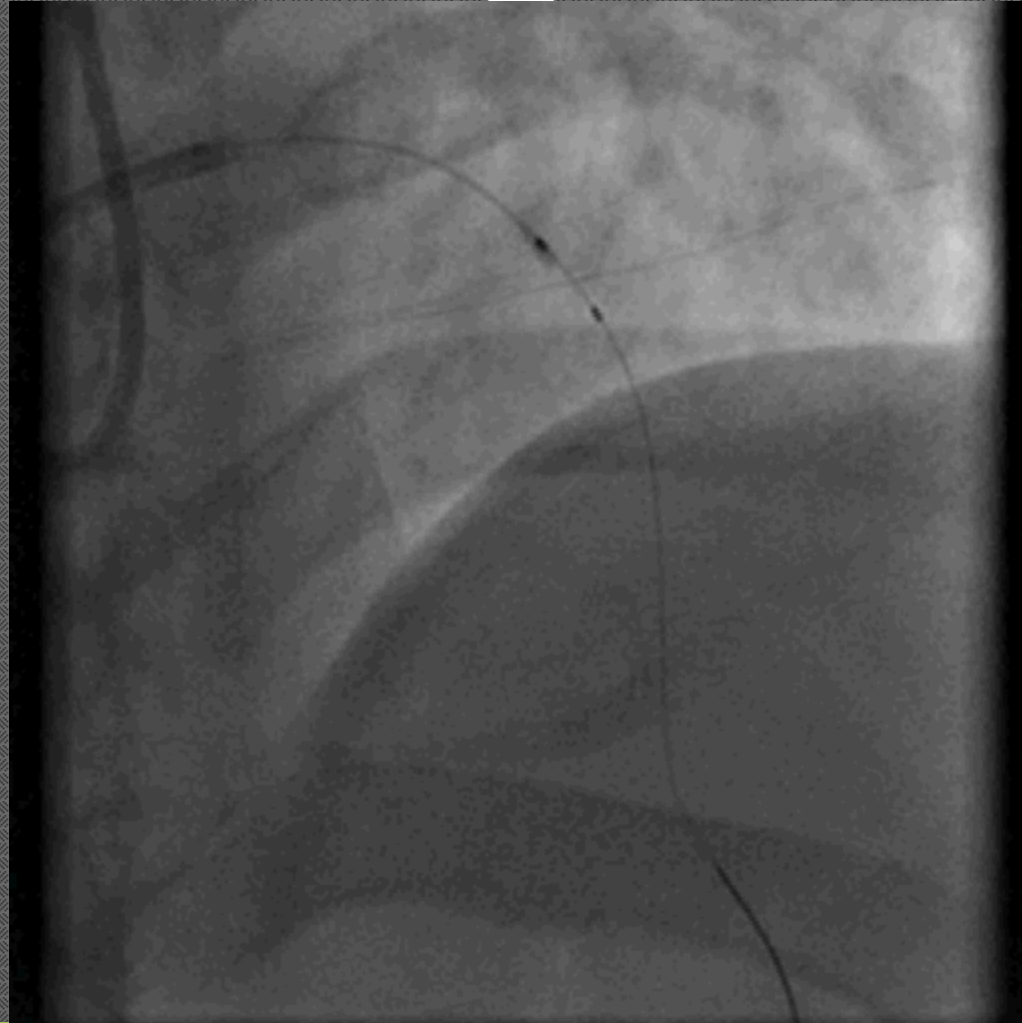
LAD total occlusion



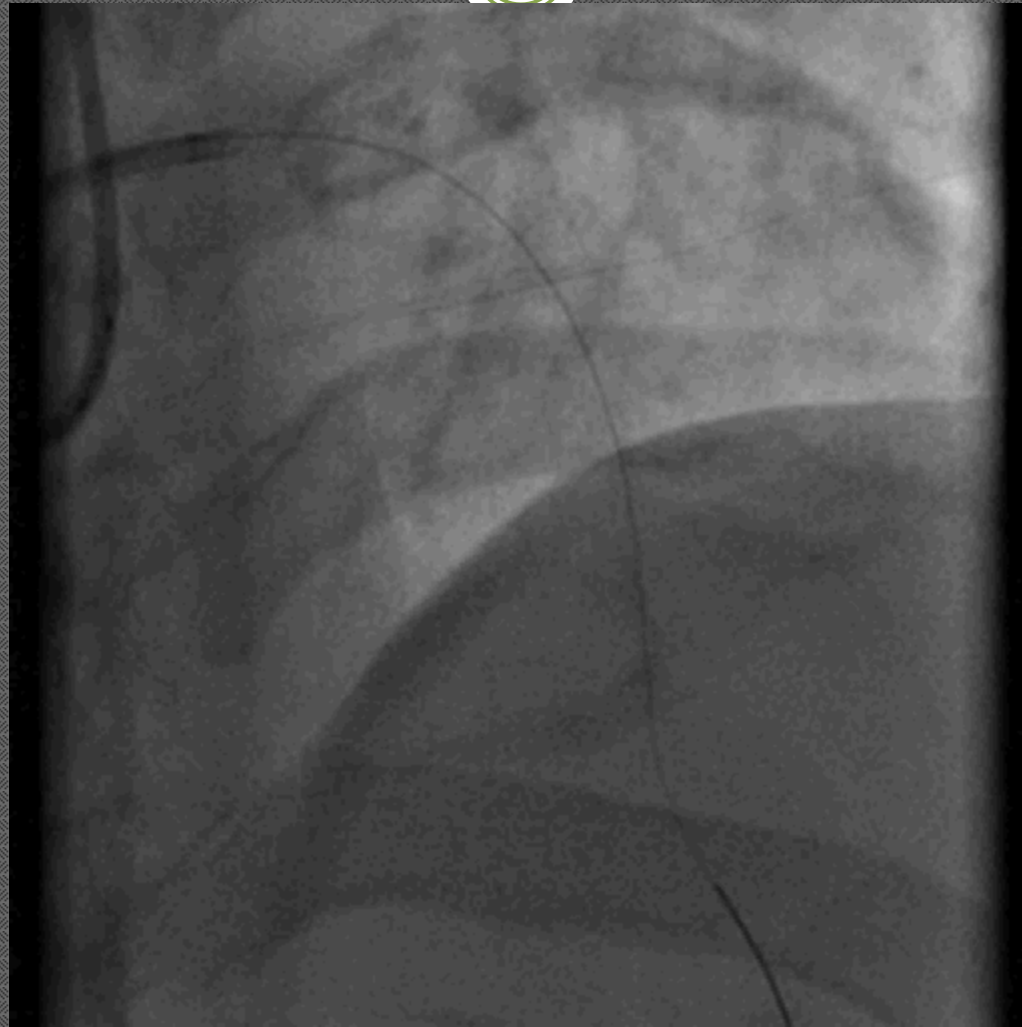
LAD wiring



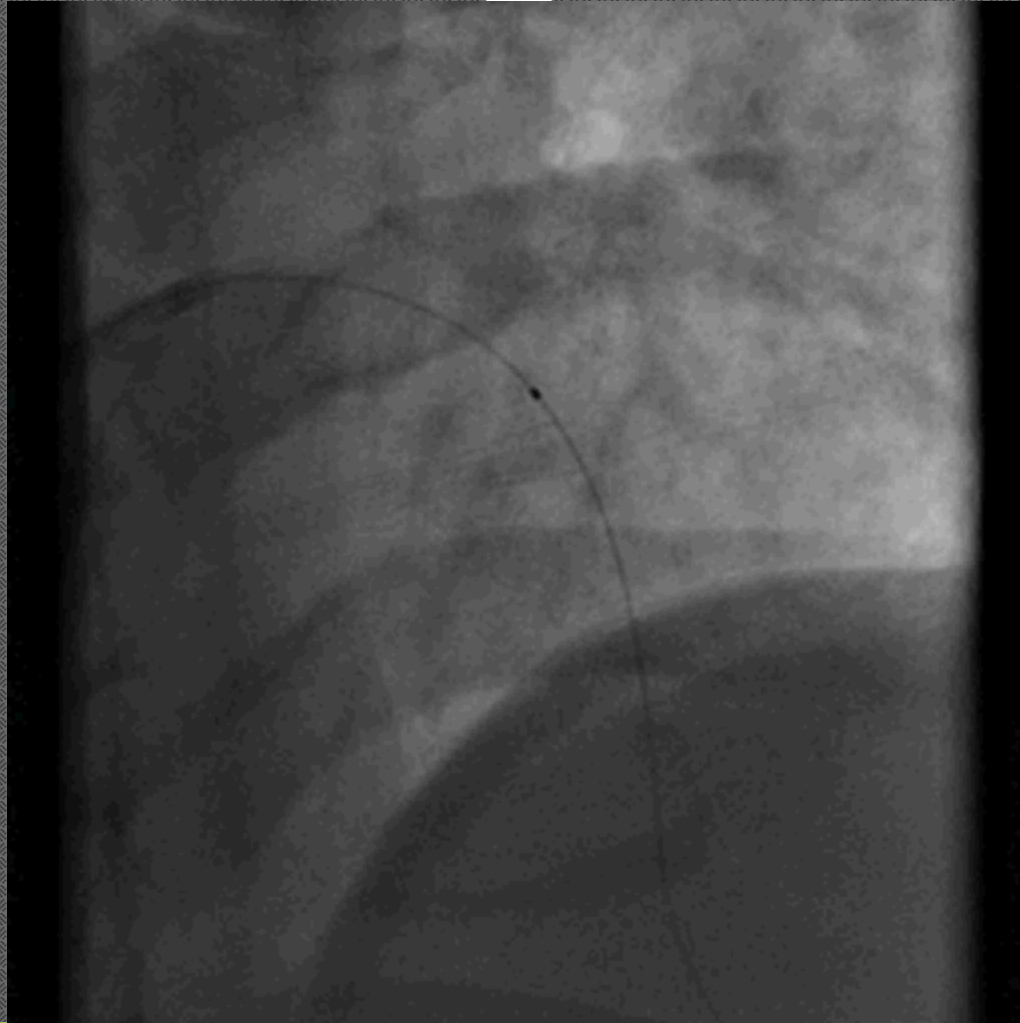
Predilatation with balloon



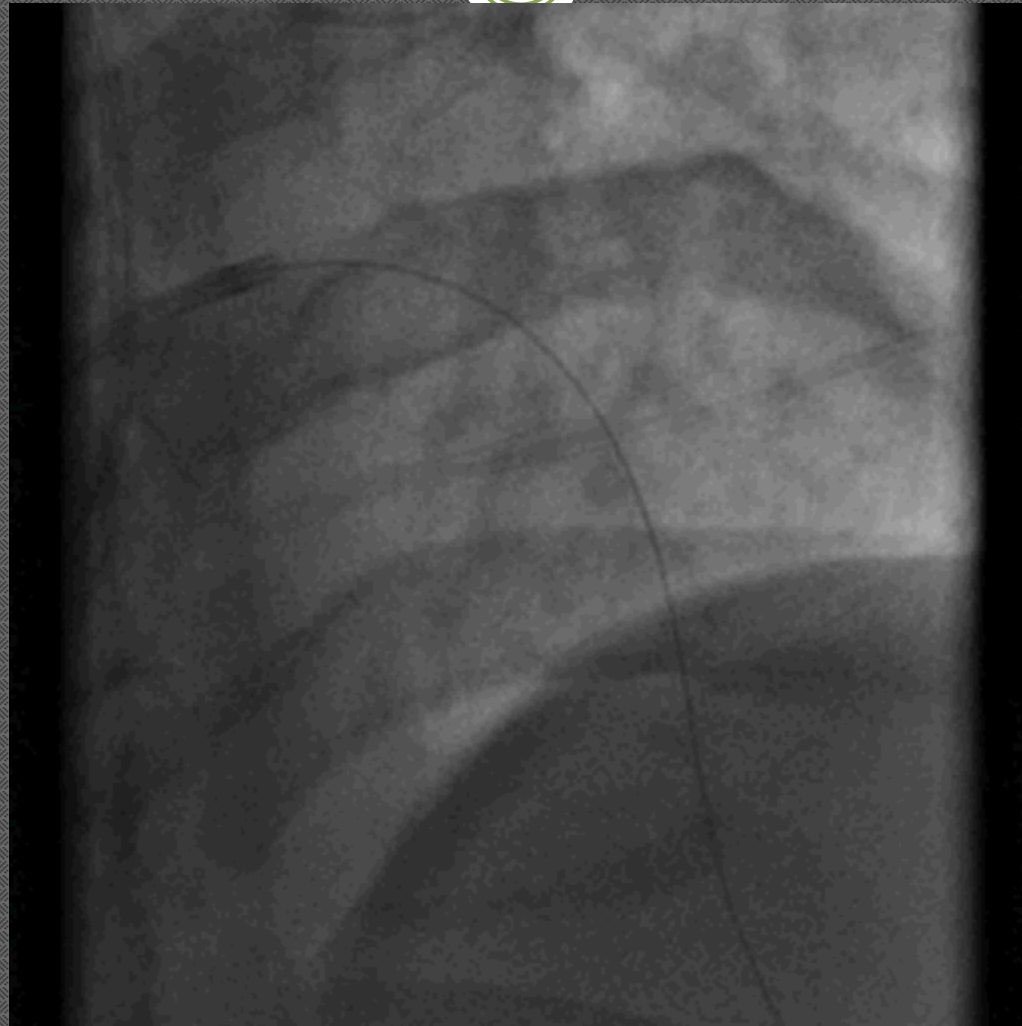
No flow after Predilatation



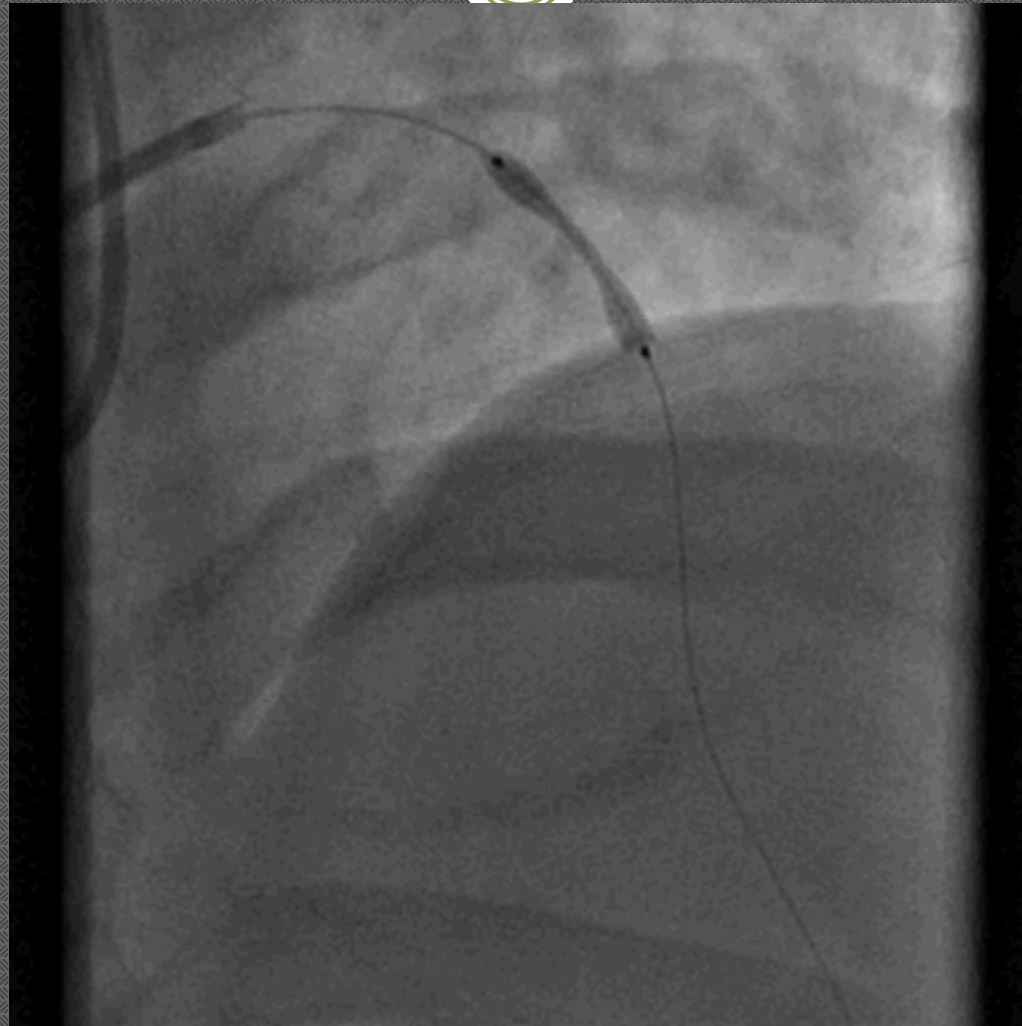
Using Thrombus Extraction Catheter



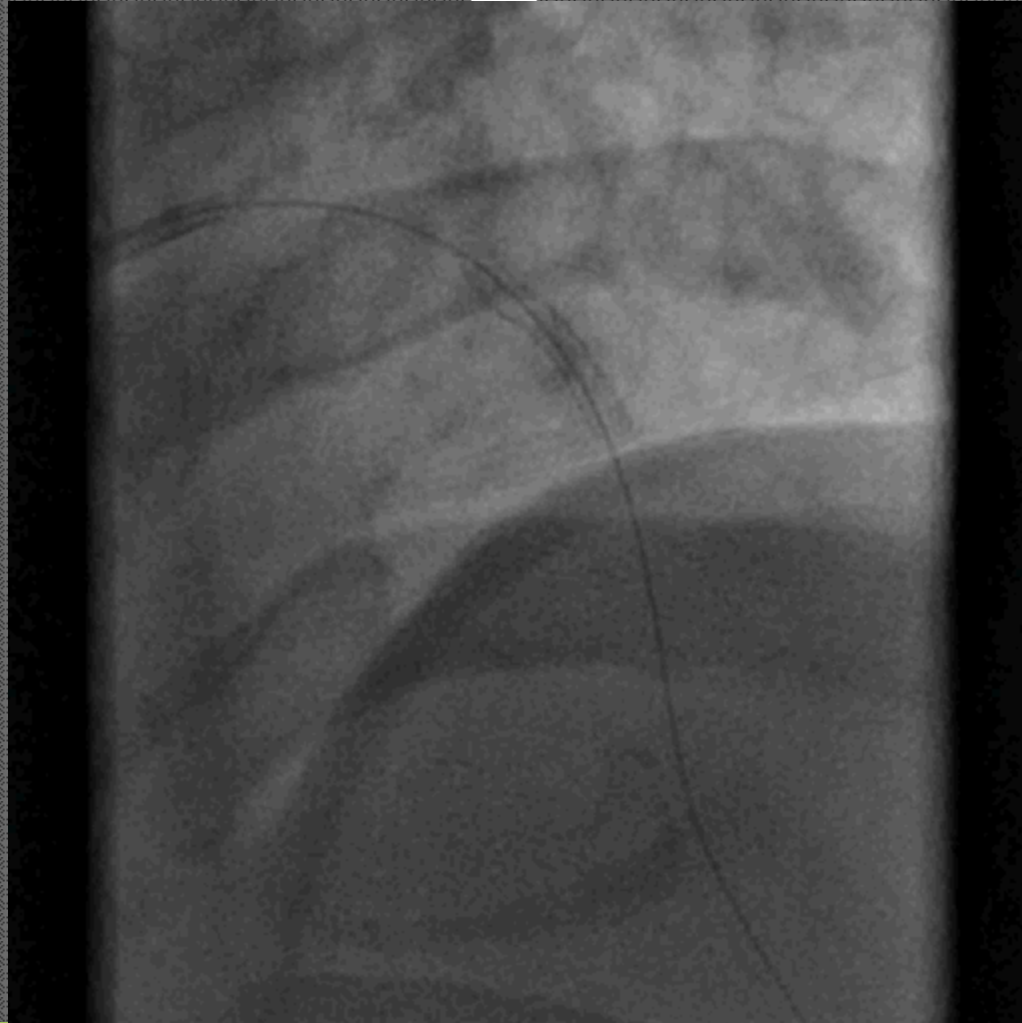
TIMI-III flow after TEC



Deployment of stent



Final results



3rd ECG after PTCA



7/16/2011 8:39:04 AM
Unknown

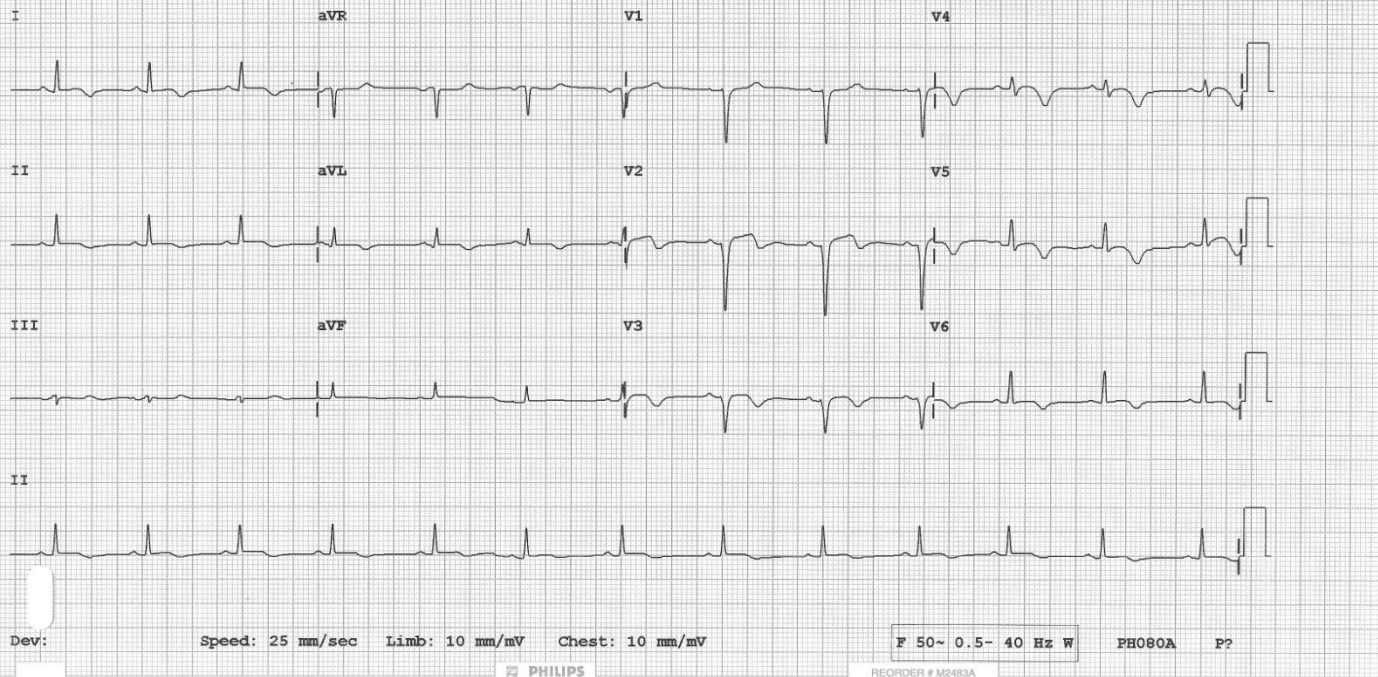
16/7/11
Mr P. Adhi Raju

Rate 78 . AGE IS NOT ENTERED, ASSUMED TO BE 50 YEARS OLD FOR PURPOSE OF ECG INTERPRETATION
PR 132 . SINUS RHYTHM.....normal P axis, V-rate 50- 99
QRSD 85 . BORDERLINE R WAVE PROGRESSION, ANTERIOR.....R < 0.15mV
QT 388 . LEADS
QTc 442 . ABNORMAL T, CONSIDER ISCHEMIA, ANT-LAT LEADS.....T <-0.25mV, I aVL V2-V6

--AXIS--
P 15
QRS 33
T 150

- ABNORMAL ECG -

Unconfirmed Diagnosis



Case-3 Evolution of ECG changes in MI ECG1

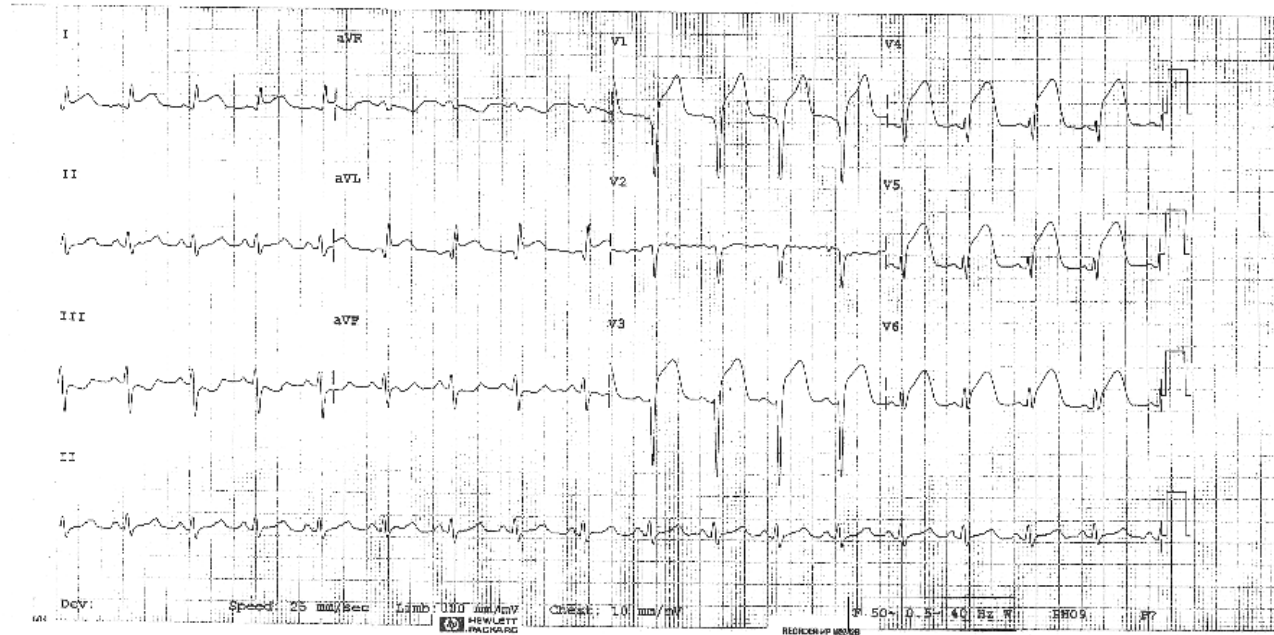


ECG # 2 - Manish
Pg # 1

Rate 102
PR 140
QRSD 88
QT 364
QTc 474

--AXIS--
P 90
QRS -2
T 11

8/3/09 at 8:45^{am}



ECG-2

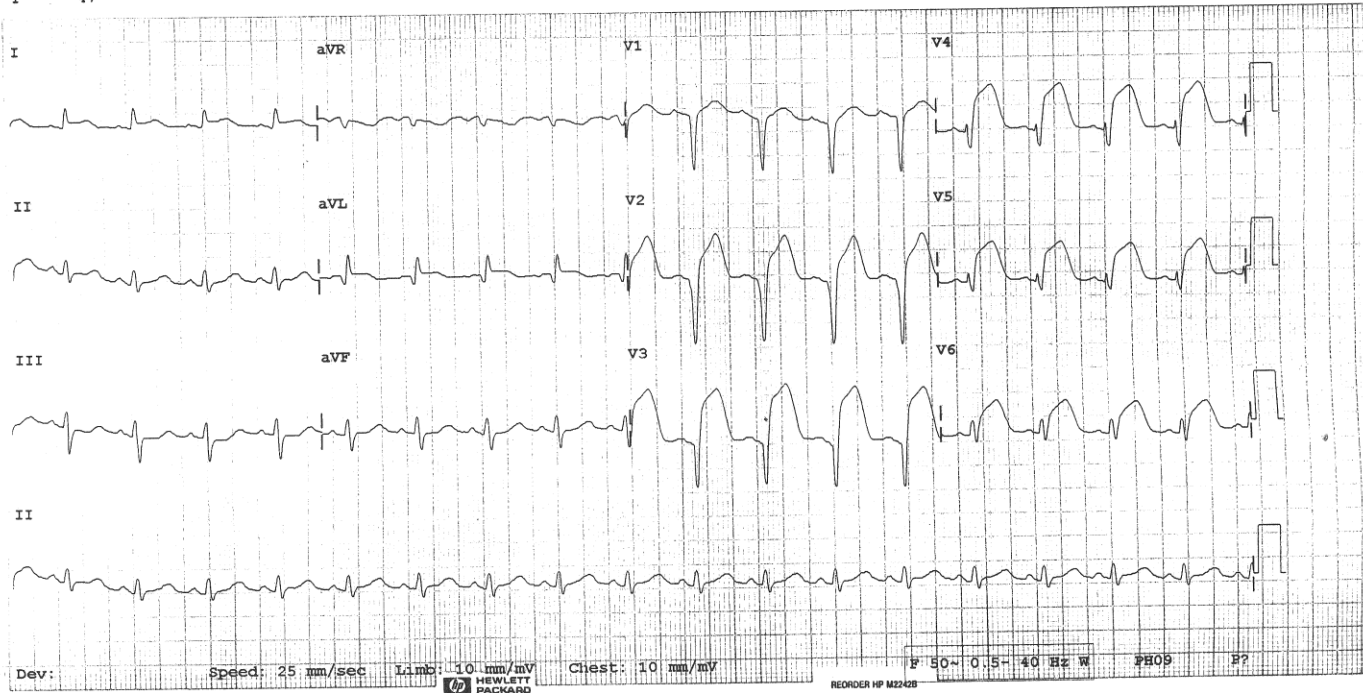


Pg # 2 - Mania

10:00 AM

Rate 107
PR 140
QRSD 92
QT 372
QTc 496

--AXIS--
P 71
QRS 10
T 47



Dev: Speed: 25 mm/sec Limb: 10 mm/mV Chest: 10 mm/mV F 50 0.5 40 Hz W PH09 P?

ECG-3, after STK



pg # 3 Maniah

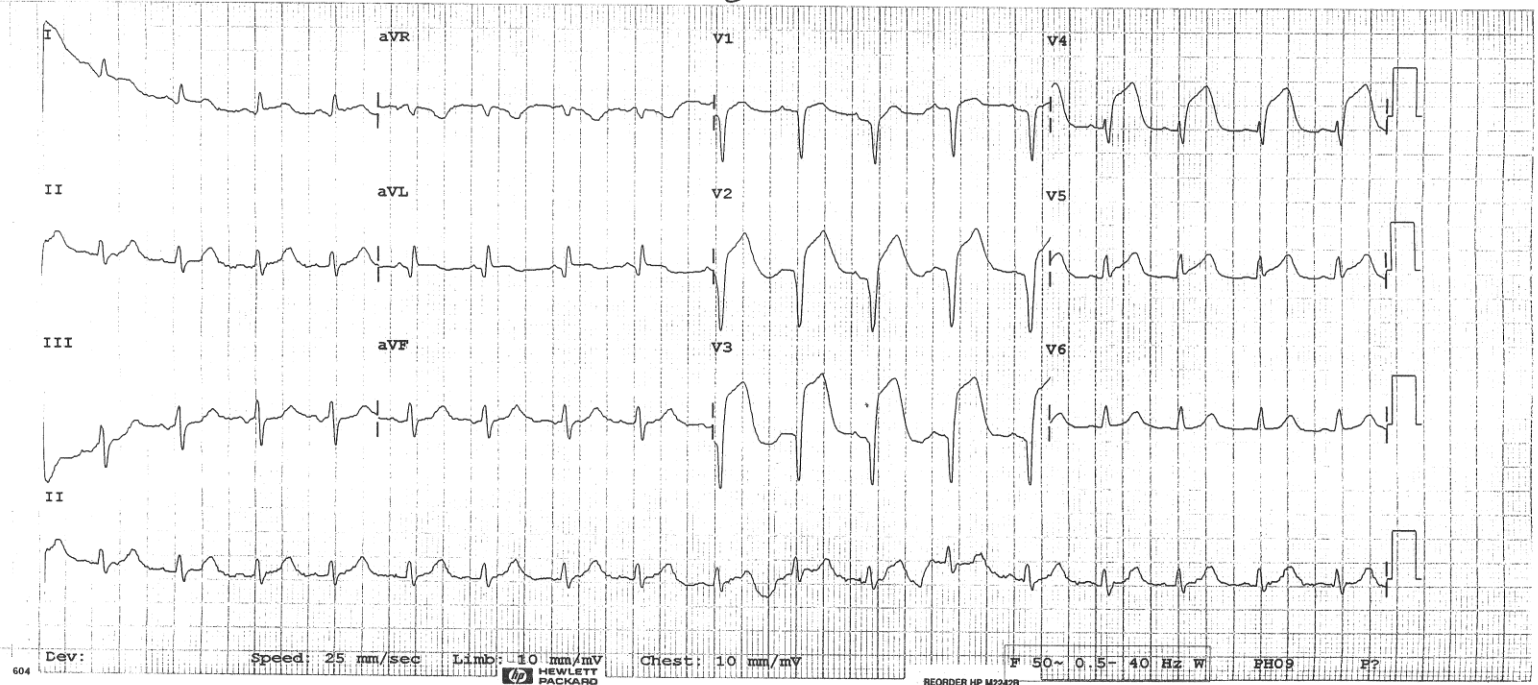
Rate 105
PR 132
QRSD 98
QT 392
QTc 518

--AXIS--
P -12
QRS 10
T 55

Post STK
stabil

8/18/15
10:35pm

md: man a'ah
200901894
8/13/09 at 12:10 p



ECG-4, after PTCA

ppp manah . 08/03/2005 01:24:05 name:

mr. manah

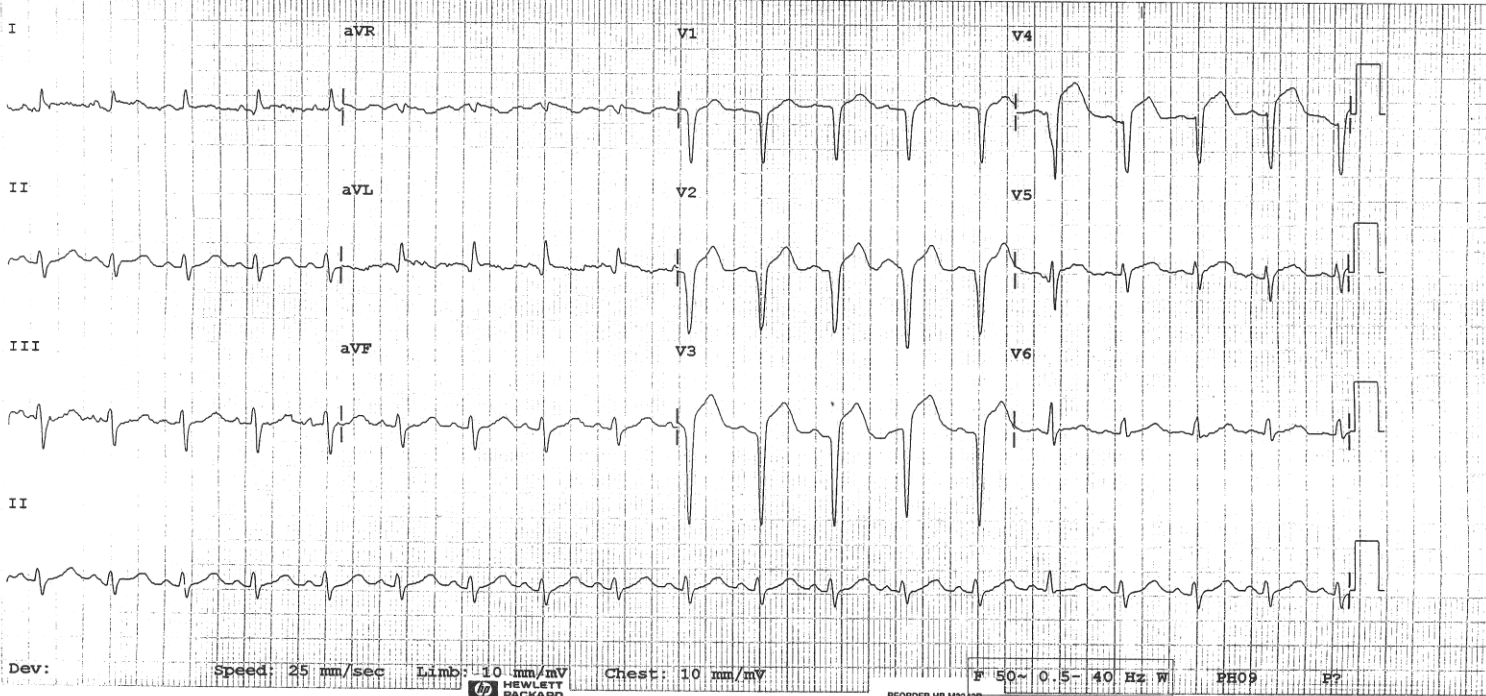
200901894

8/3/09 at 12.10 PM

post PTCA

Rate 111
PR 148
QRSD 88
QT 352
QTc 478

--AXIS--
P 42
QRS -17
T 72



ECG-5, PTCA 2nd day

pt 5 Maniah -

ID: 08/03/2009 02.52.23 Name:

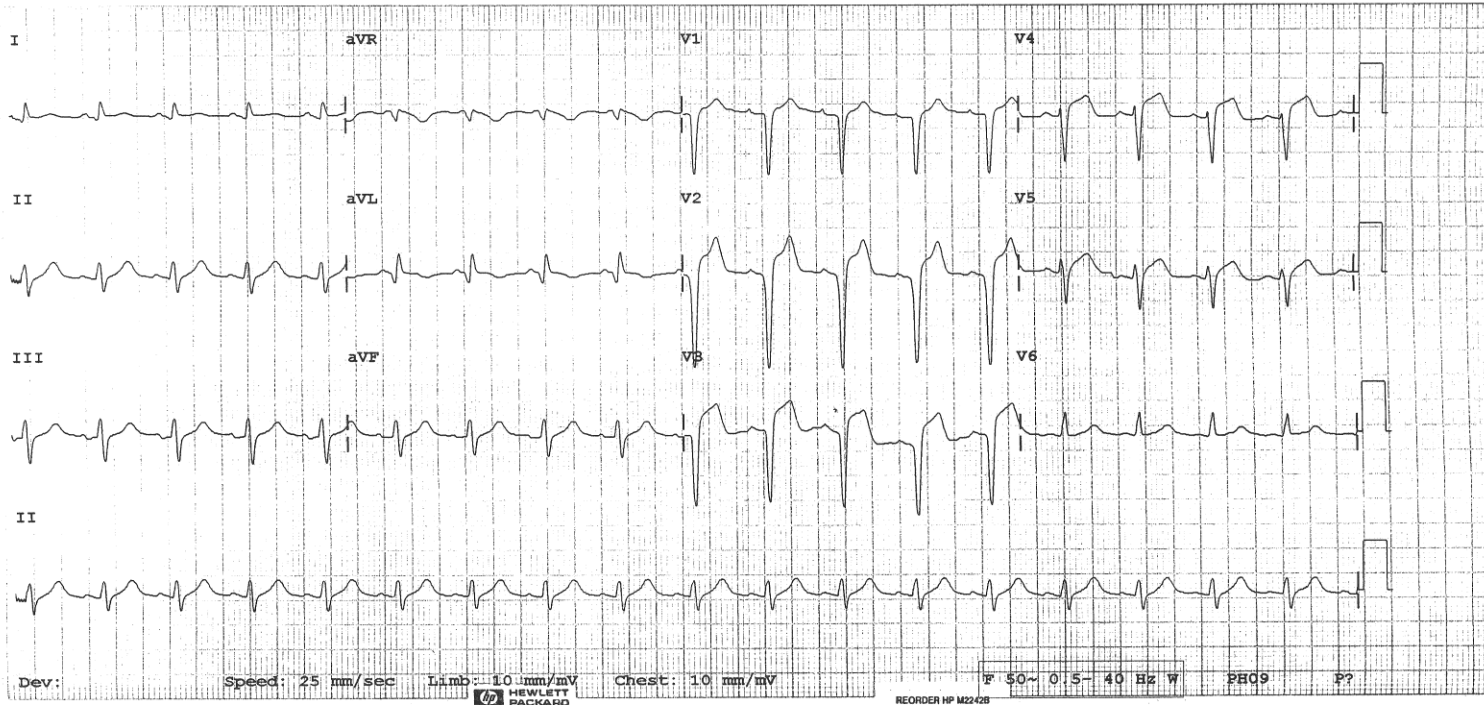
Rate 108
PR 136
QRSD 96
QT 356
QTc 477

--AXIS--
P 25
QRS 255
T 83

8/3/09

1.80pm
Post PTCA

600



ECG-6,

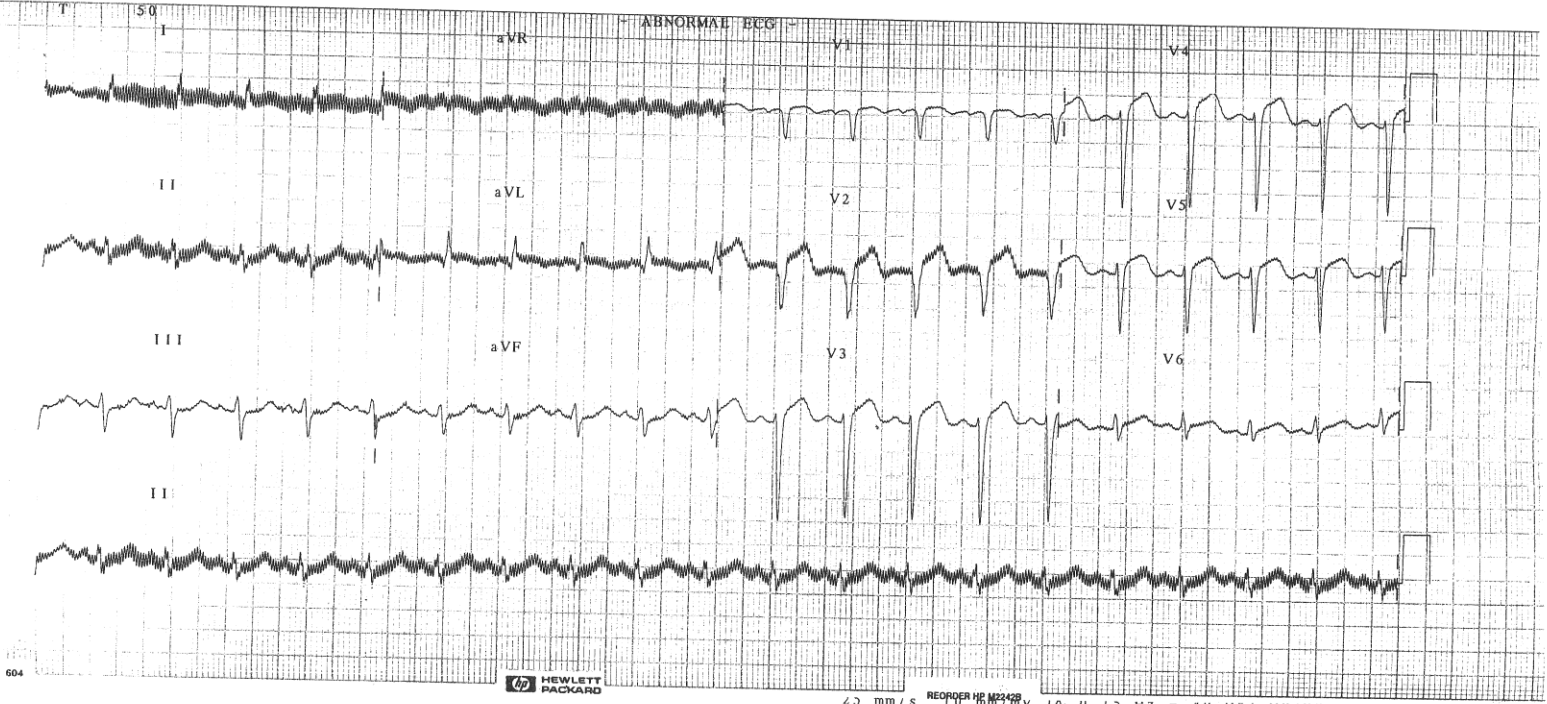


fig #6 Maniah.

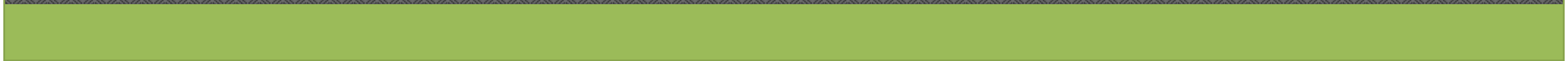
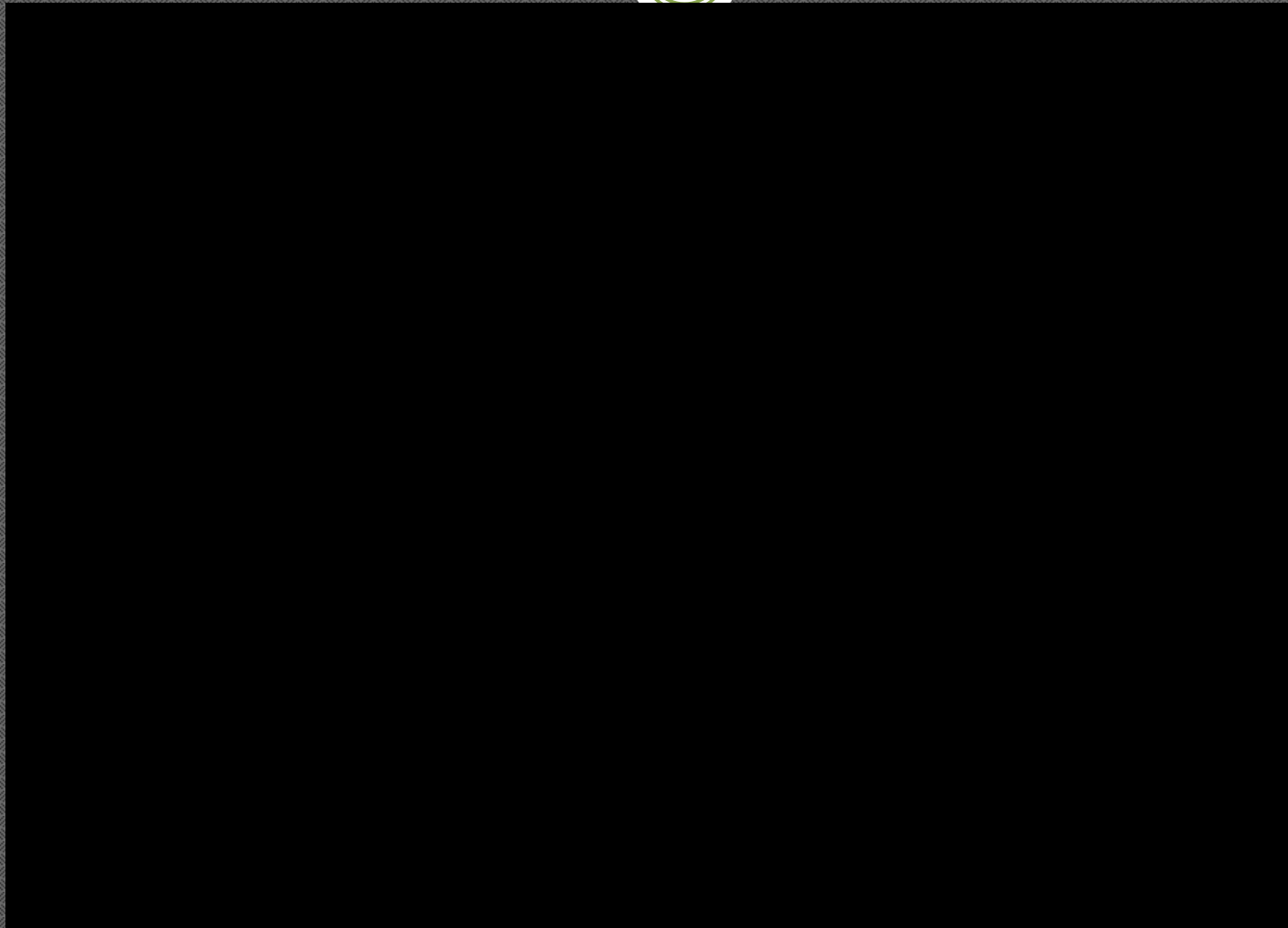
Mr. Maniah
9/03/2009
at 7:10 AM

Rate	118	. Sinus tachycardia, rate 118.....	Normal P axis, rate \geq 100
PR	130	. Late transition.....	QRS negative in V5 or V6
QRSD	90	. Probable Anterolateral Subepicardial injury.....	ST $>$.20 mV I, aVL, V2-V6
QT	304		
QTc	426		

--Axis--
P 47
QRS 8



Impella Device in High Risk PTCA



IABP device in Current scenario



fesildeff@gmail.com

Shall we believe still the thrombolytic?



- In ACS with STEMI and NSTEMI, Primary PTCA or rescue PTCA is the only option.
- Thrombolytic gives only 40% perfusion in TIMI-II
- Most of the MI related complications occurs only in thrombolytic regime and delay in treatment.
- Non diabetic, non hypertensive and non smoker young individual still have some benefits of thrombolytic.

What are the benefits of Primary PTCA?



- Decreases morbidity and mortality
- Reduces and prevents complications
- Prevents future CHF
- Reduces hospitalization
- Reduces treatment costs

Home taking messages



- Early recognition of STEMI
- Early mobilization
- PTCA with in 60 min Prevent mortality
- No substitute treatment is available for ACS except primary PTCA.
- Advanced cardiac devices in high risk PTCA will reduces mortality and morbidity.
- If cath lab is not available, treat only with effective measures.