RARE COMPLICATION AFTER PCI (CORONARY ARTERY STENTING)

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CASE PRESENTATION

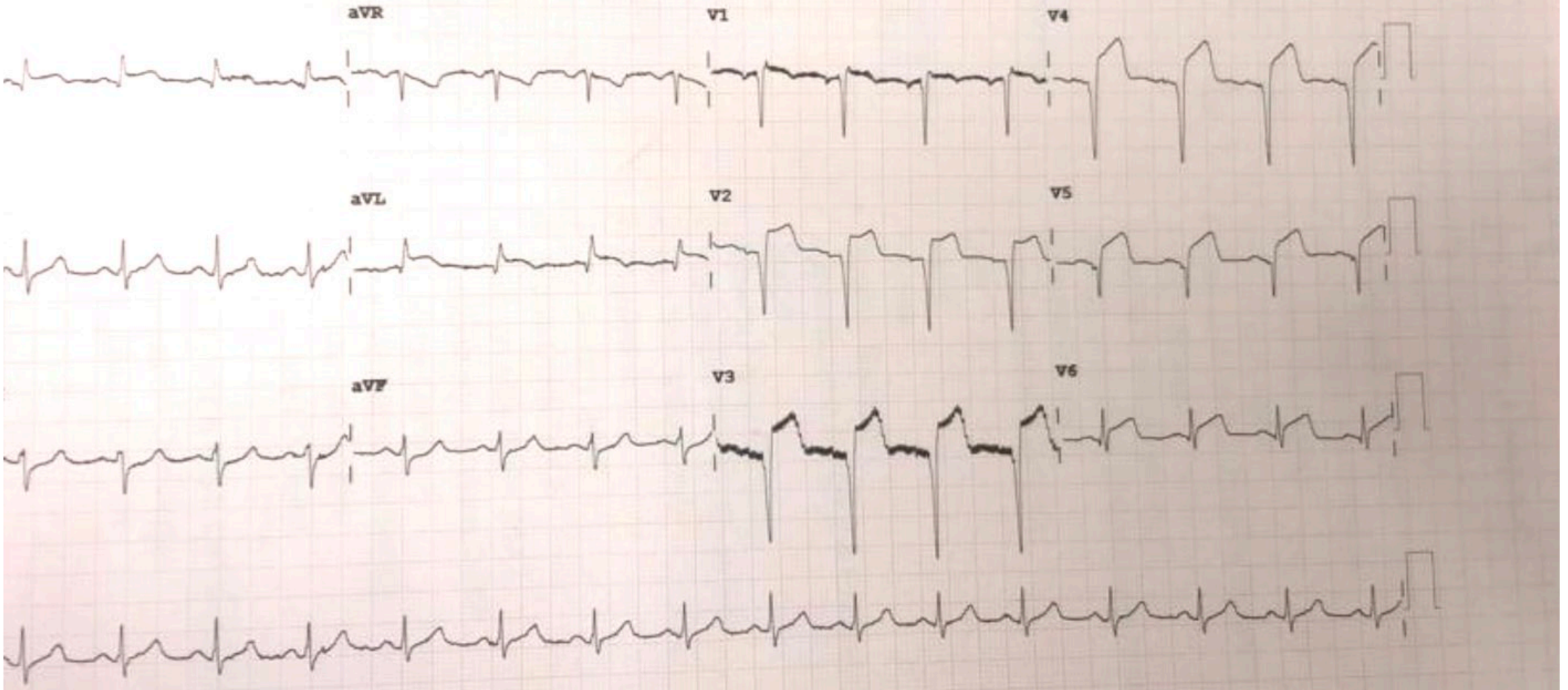
- A 49 years old male presented with ST elevation Anterior Wall Myocardial Infarction with mild LV dysfunction in June 2021. He underwent successful PAMI (primary PCI) with stenting to proximal Left Anterior Descending (LAD) coronary artery (Everolimus drug eluting stent) at a local hospital .The patient did not show any complication and was discharged from hospital in healthy condition.

- ABNORMAL ECG -

>>> Acute MI <<<

Lead; Standard Placement

Unconfirmed Diagnosis



ice:

Speed: 25 mm/sec

Limb: 10 mm/mV

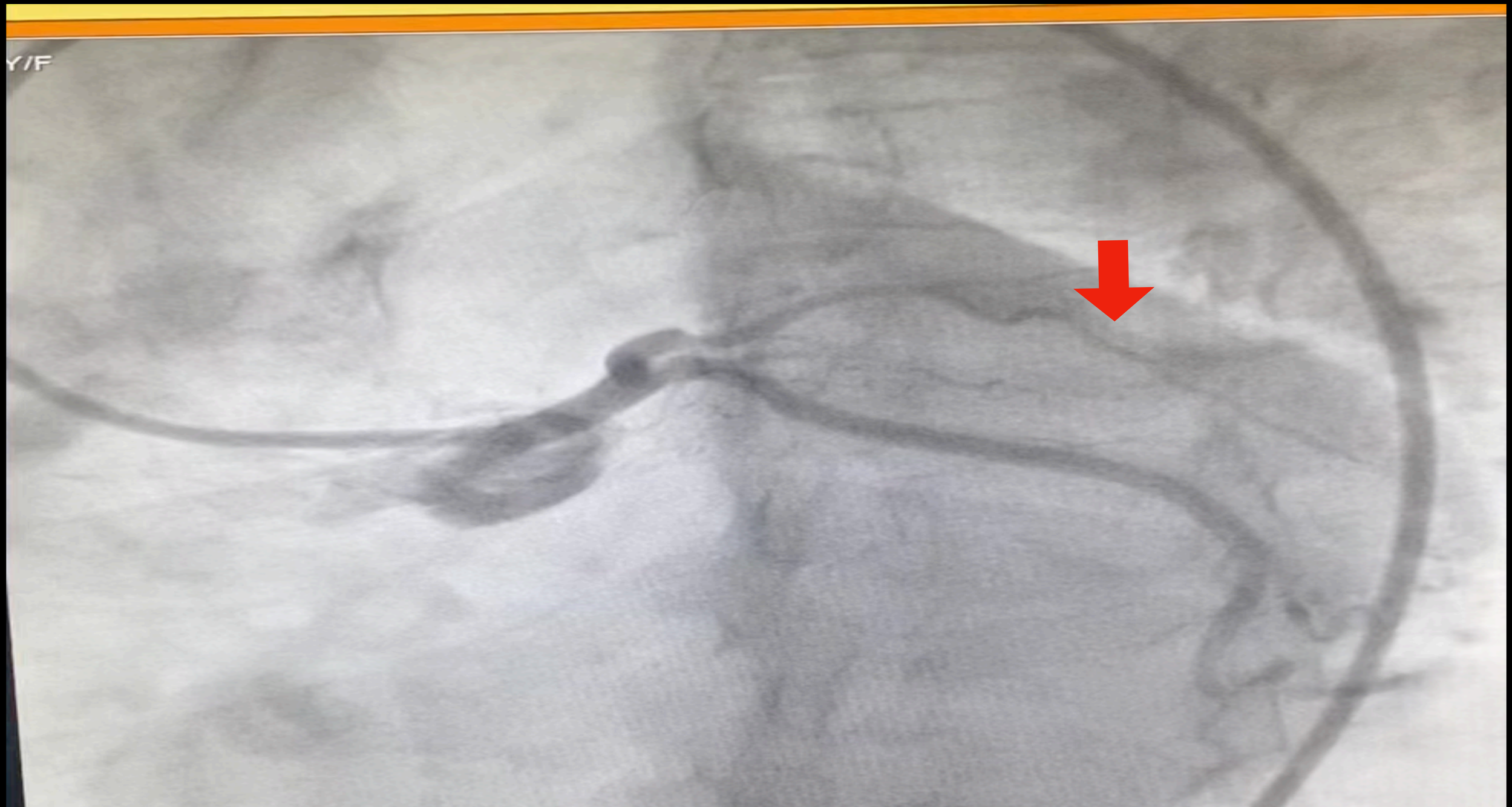
Chest: 10.0 mm/mV

F 60~ 0.15-100 Hz

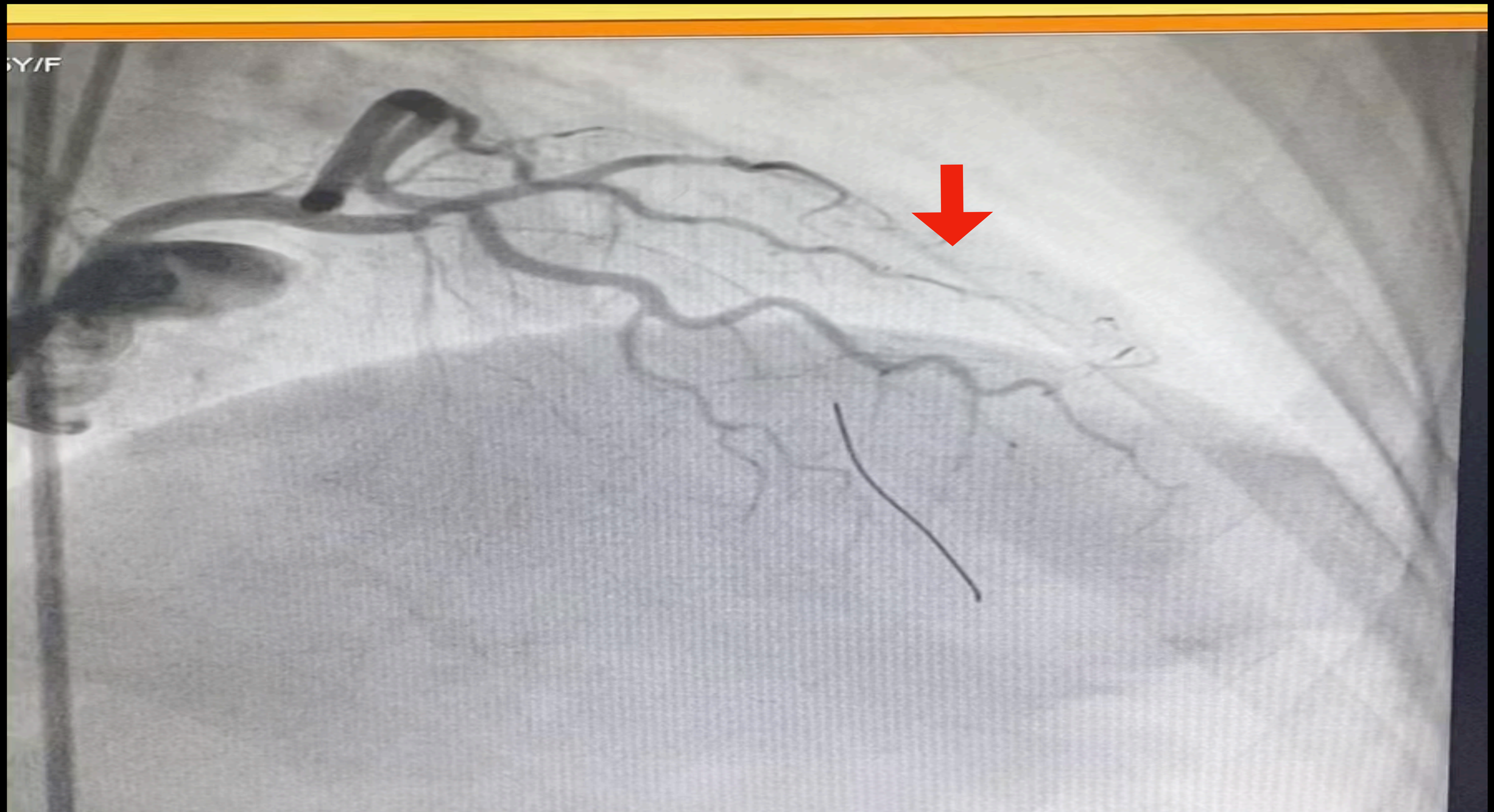
PH100B CL

P?

- CAG - LAD TOTALLY OBSTRUCTED PROXIMALLY



PRIMARY PCI - LAD



- After 10 days, he started to experience typical retrosternal chest pain along with sweating. He also had high grade fever accompanied by chills and was admitted to Cardiac care unit of our hospital

ON EXAMINATION

- Clinical examination revealed febrile patient with tachycardia,
- Pulse 116 bpm, BP 110/70 mm Hg, SpO2 98% on room air.
- Systemic examination was unremarkable.

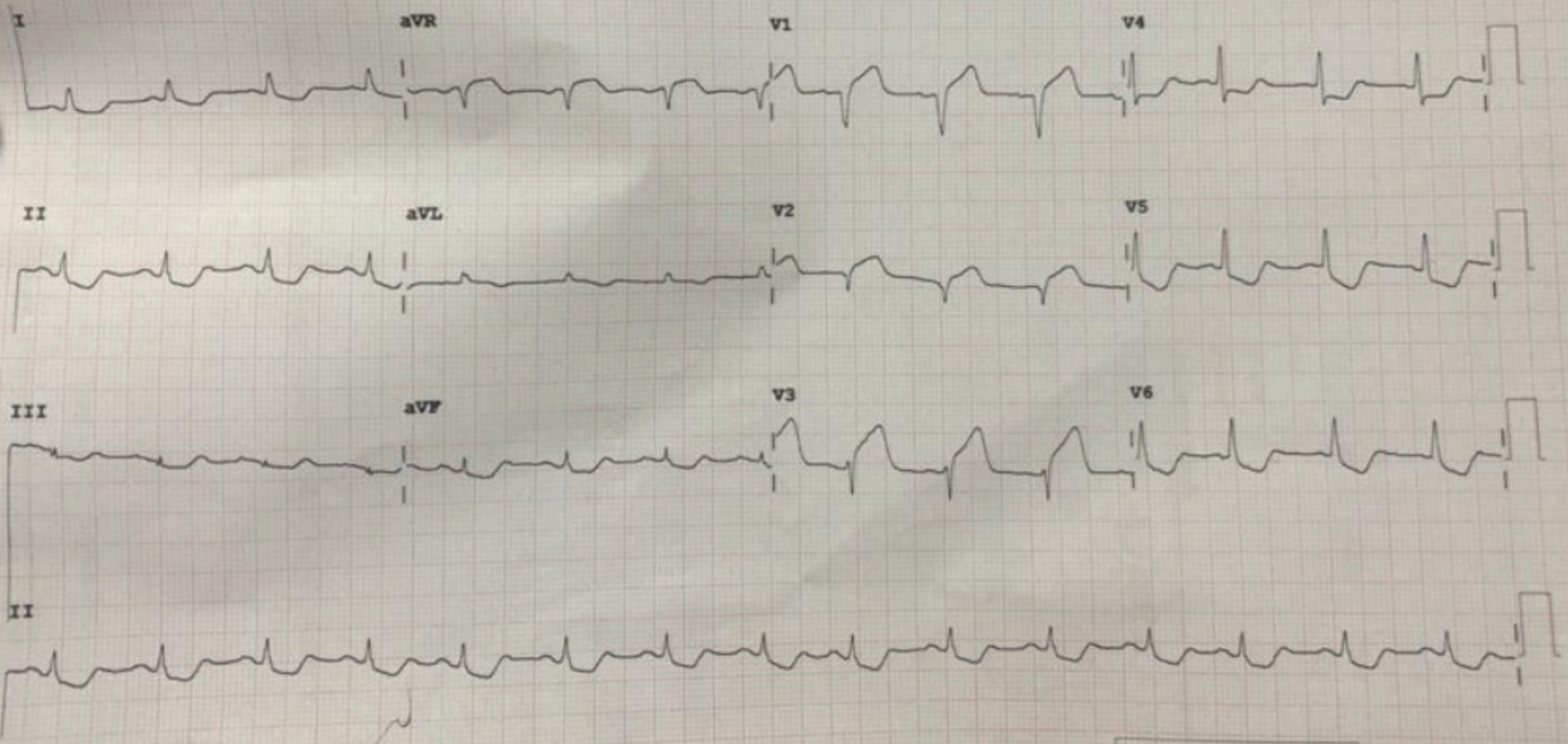
DIFFERENTIAL DIAGNOSIS

- Fresh episode of MI
- Subacute stent thrombosis
- Dressler’s syndrome
- Associated secondary infection

INVESTIGATIONS

- Laboratory findings were notable for leucocytosis (WBC-25000/cu mm)
- Sr. Procalcitonin levels were raised (0.36ug/L).
- Blood culture were sent and tests for malaria, dengue, and typhoid antigens came negative. COVID RTPCR was negative
- The electrocardiogram showed QS pattern with ST elevation of 2 mm in leads V1-V3
- Cardiac Troponin-I: 404 ng/ml , CK-MB:48 IU were found to be elevated.
- Chest X ray showed mild cardiomegaly and no evidence of pulmonary infection.

12 Lead; Standard Placement



Device:

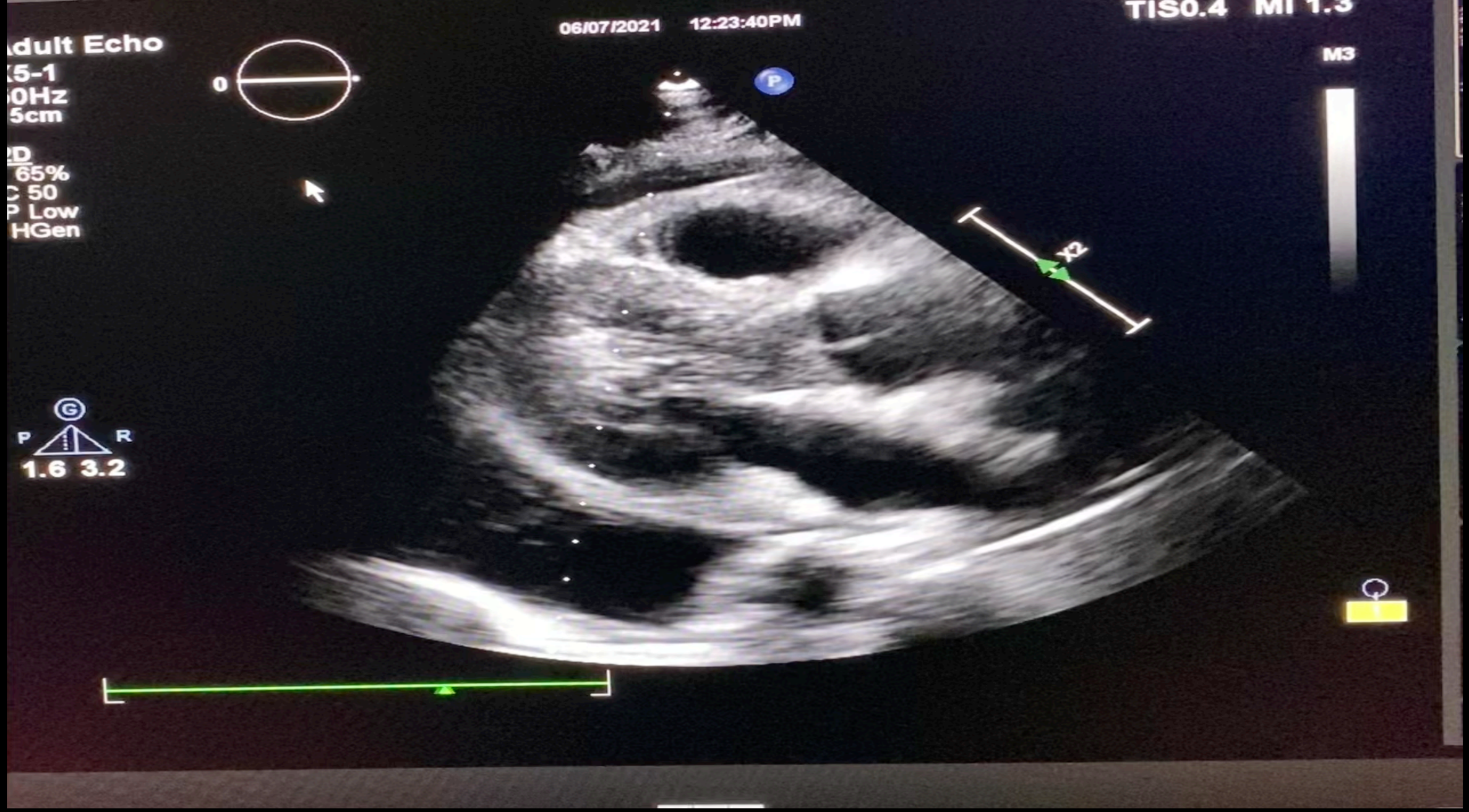
Speed: 25 mm/sec Limb: 10 mm/mV Chest: 10.0 mm/mV

F 50~ 0.15-100 Hz

P?

PHILIPS

- 2D Echo revealed Mild LV dysfunction with LVEF-50% and mild LAD territory hypokinesia. Moderate pericardial effusion was noted with maximum 19 mm, more laterally and posteriorly, thereby making it difficult for diagnostic pericardiocentesis. There was no Mitral regurgitation (MR) , LV clot or pulmonary arterial hypertension (PAH)



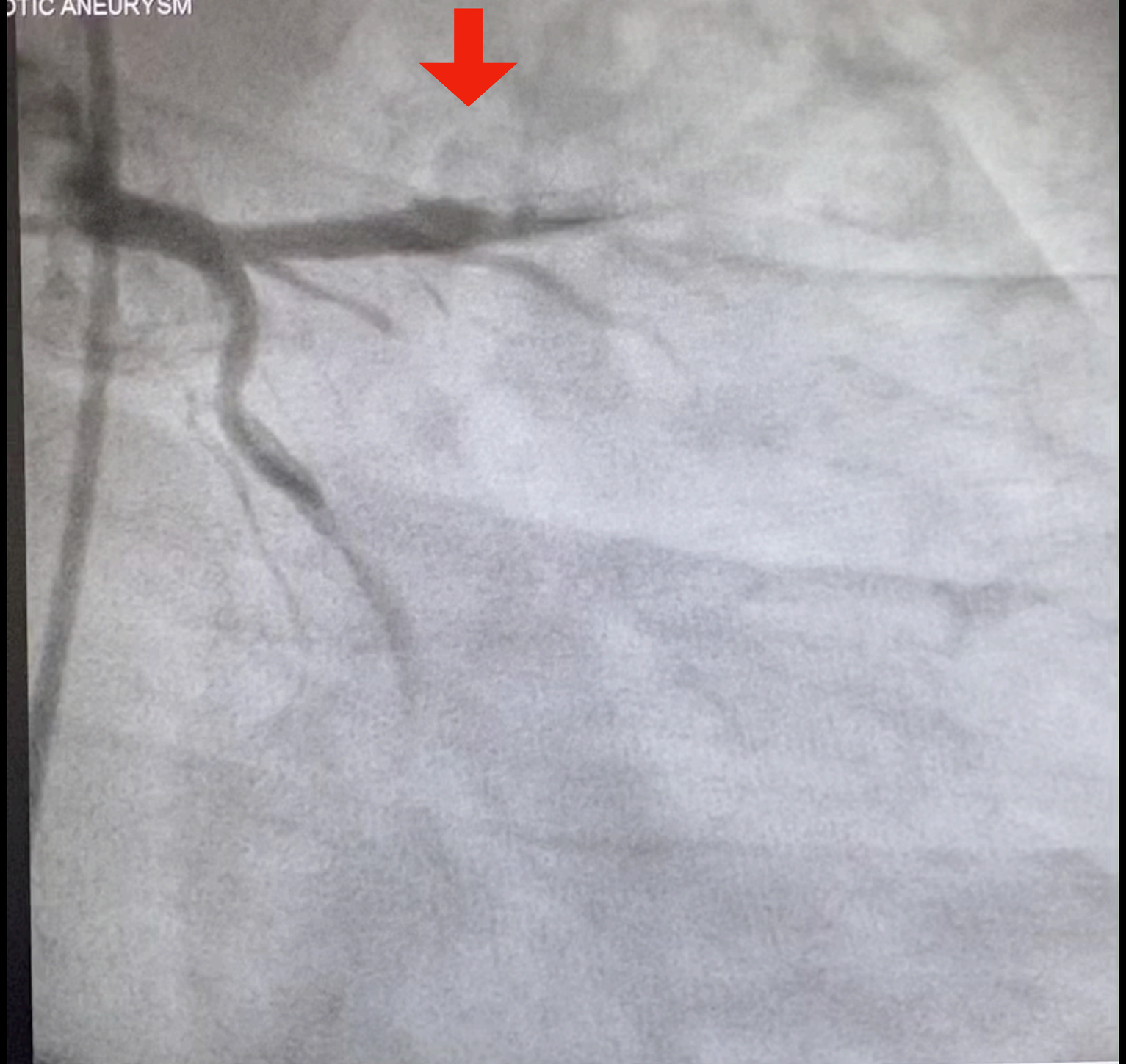
2D ECHO - MODERATE PERICARDIAL EFFUSION

INITIAL TREATMENT STRATEGY

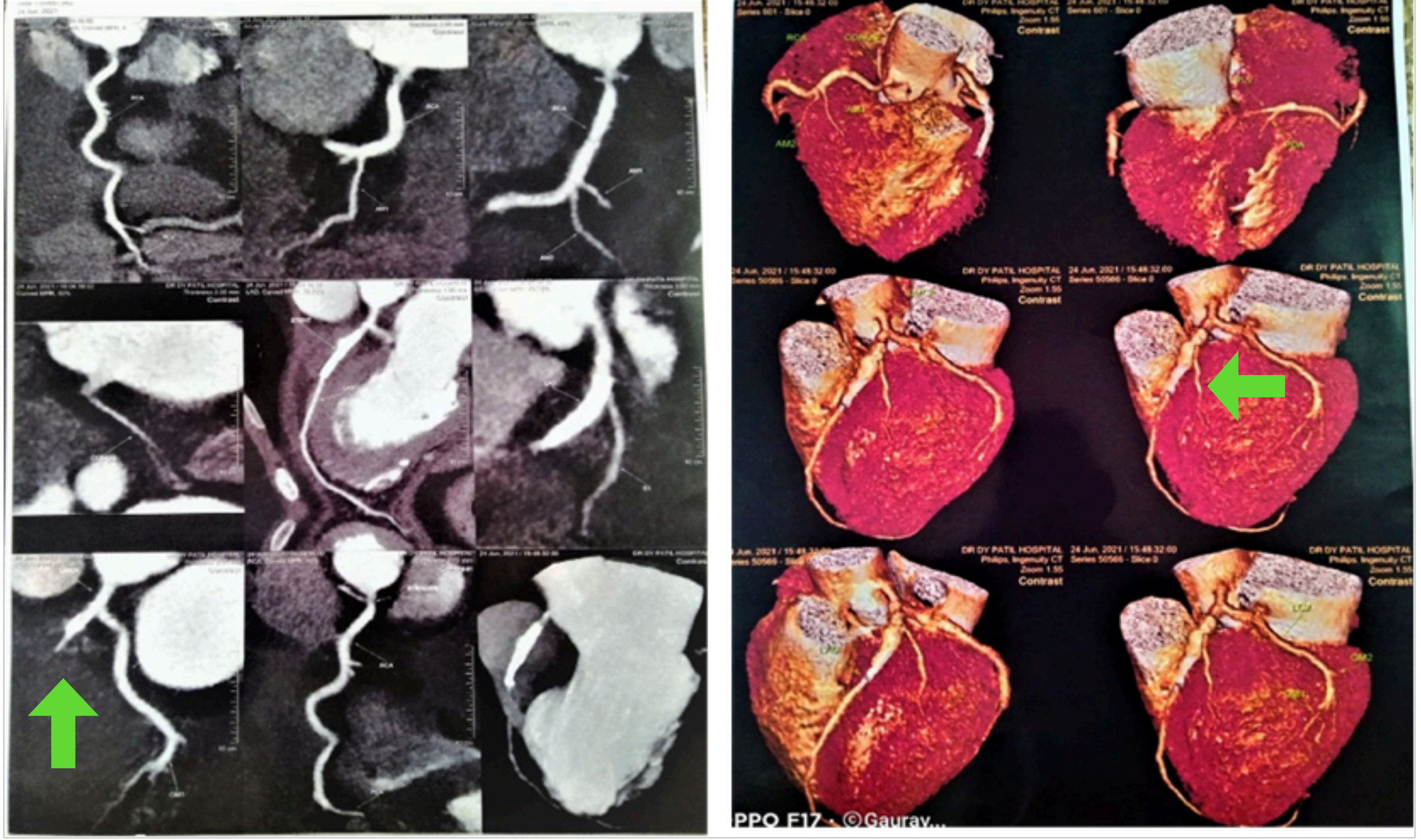
- Based on these clinical and lab findings, he was suspected to have sub-acute stent thrombosis along with some infective pathology.
- He was started on intravenous ceftriaxone along with Low Molecular Weight Heparin, tablet colchicine , dual anti platelets and statin were continued.

- Blood culture turned out to be sterile
- Coronary Angiogram revealed aneurysm of stented segment of LAD with grade 3 thrombus in proximal part of stent and TIMI II antegrade flow

- CAG - ANEURYSM WITH MILD THROMBUS IN PROXIMAL PART ON STENT IN LAD ARTERY

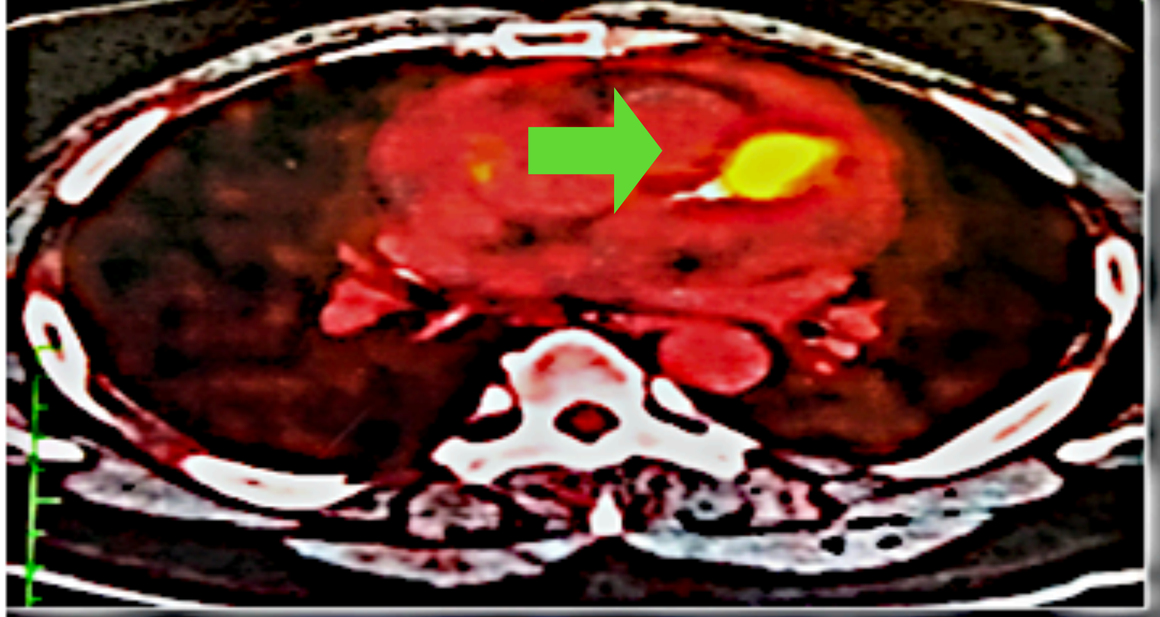


- Cardiac CT Angiogram showed aneurysmal dilation of LAD in proximal segment along the stent with max dimension of 6.3 mm. Filling defect could also be seen in stent causing 30-40 % narrowing in proximal segment with moderate pericardial effusion (thickness -22mm)



ANEURYSMAL DIALATATION OF PROXIMAL SEGMENT

- Positron emission tomography (PET) scan showed mild basal septum hypoperfusion with evidence of linear increased metabolic activity along the mid segment of LAD stent suggestive of inflammation in this region compatible with mycotic aneurysm .



- PET SCAN - INCREASED METABOLIC ACTIVITY ALONG THE MID SEGMENT OF LAD STENT

FINAL DIAGNOSIS

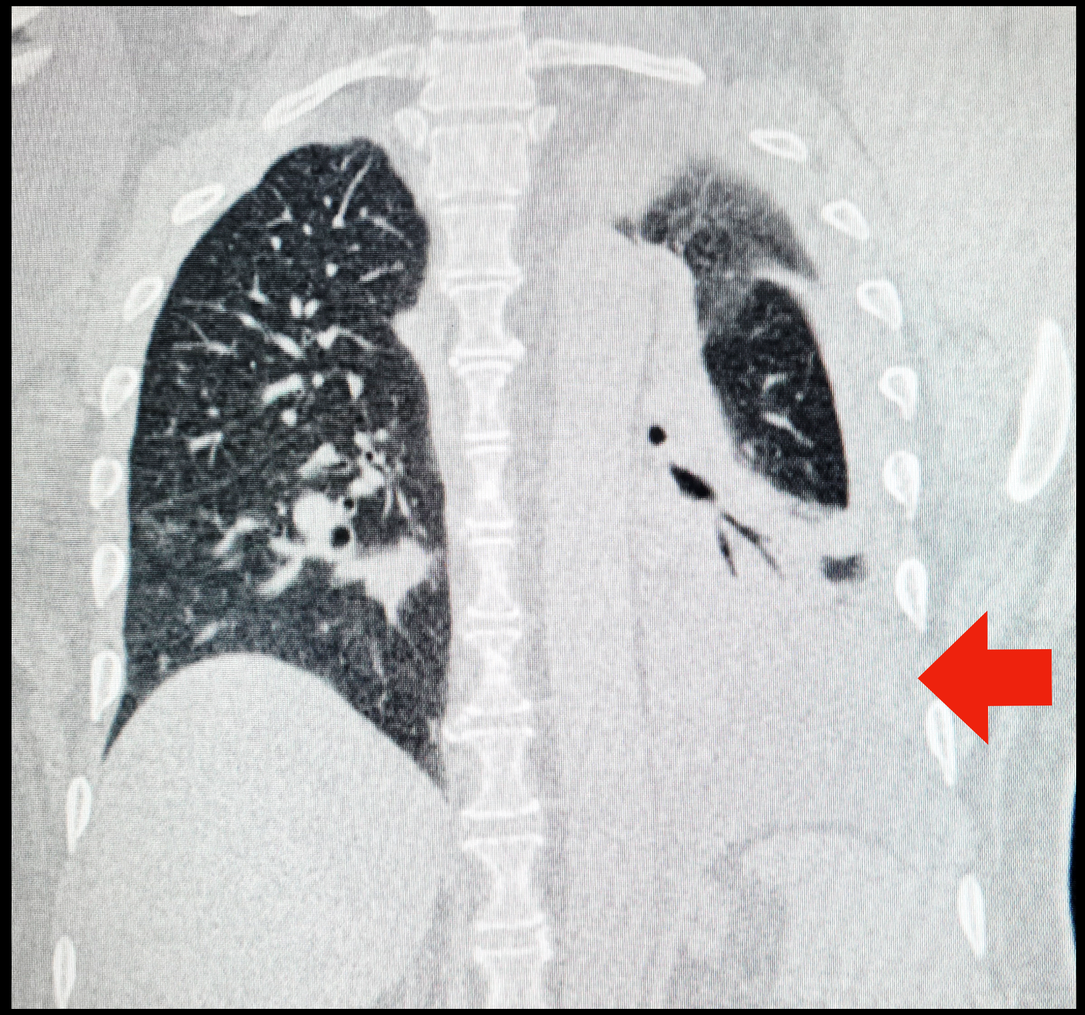
- Coronary artery aneurysm due to secondary infection post stenting further complicated with focal thrombus formation with pericardial effusion & sepsis

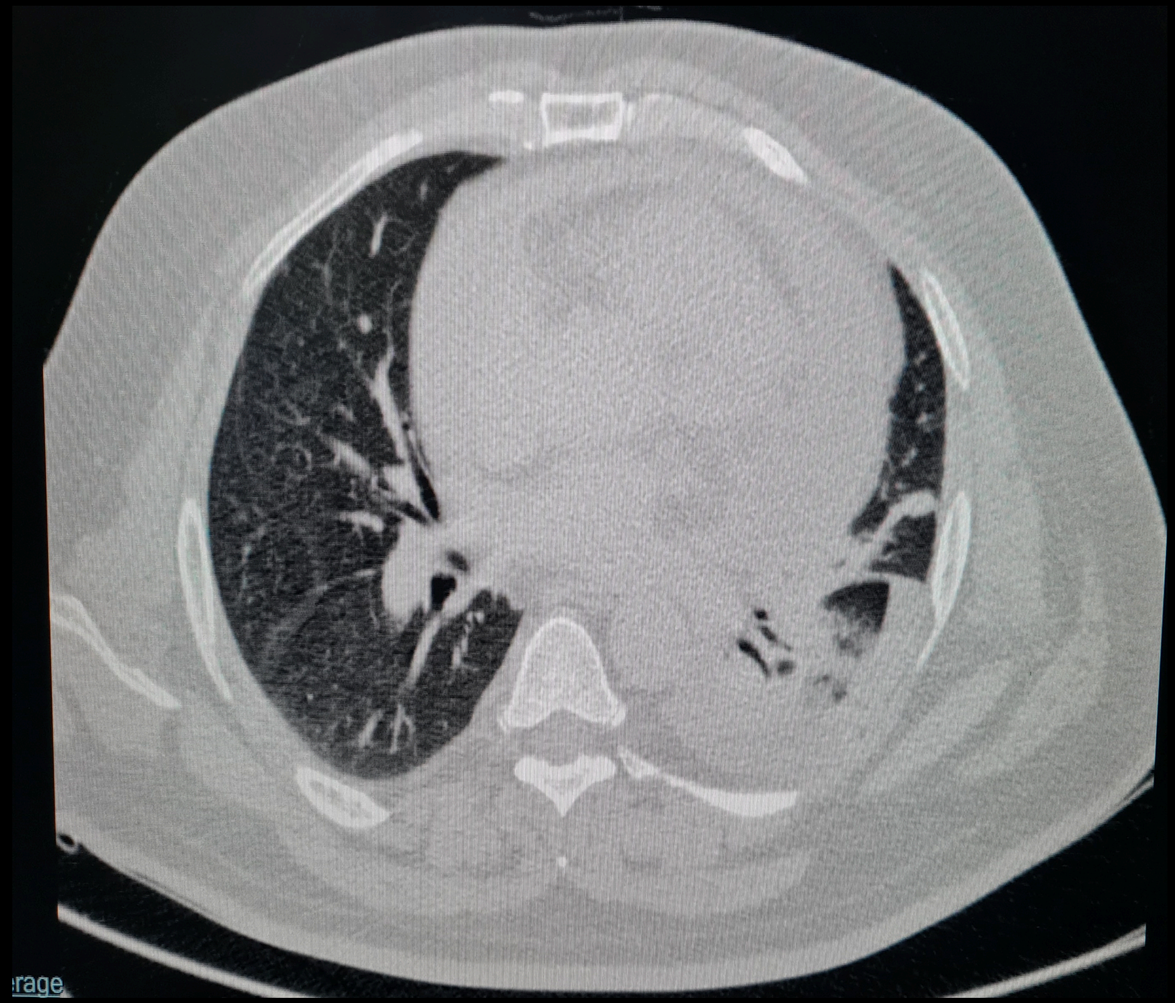
- A week later he developed left lower chest pleuritic pain and fever worsened
- So antibiotics were upgraded to inj piperacillin-tazobactum + linezolid

- Chest x ray was done which showed moderate left sided pleural effusion
- Diagnostic pleural tapping was done which turned out to be transudative and CT thorax was done which showed left lower zone pneumonia with syn-pneumonic effusion

- There were no new ECG changes or elevations in serial cardiac enzymes. Serial echocardiogram showed gradual reduction in PE. Therefore, patient was managed conservatively with IV antibiotics, antiplatelets and LMWH followed by NOAC.

- HRCT thorax and found to have left lower lobe consolidation with moderate synpneumonic effusion





- Later condition of patient improved , he had no fever spikes & pneumonitis settled
- Patient was discharged from hospital in stable condition.
- Upon subsequent follow up visits on day 7 and day 21, he showed remarkable improvement, had no fresh complaints and pericardial effusion was completely resolved.

DISCUSSION

- Coronary artery aneurysm is defined as dialation of coronary artery by 1.5 times the diameter of reference normal artery .
- Major cause of coronary artery aneurysm is atherosclerosis which accounts for more than 50% of such cases.

CAUSES OF CORONARY ANEURYSM

Congenital.

Acquired

- Atherosclerosis.
- Inflammatory disorders.
  - Kawasaki disease.
  - Takayasu’s arteritis.
  - Giant cell arteritis.
  - Behcet’s disease.

Infectious

Mycotic aneurysm.

Septic emboli.

Bacterial.

Syphilis.

Connective tissue disorders.

Marfan’s syndrome.

Ehlers-Danlos syndrome.

Fibromuscular dysplasia.

Trauma.

Iatrogenic (e.g., PTCA, stents, atherectomy, laser angioplasty

- Mycotic aneurysms are very rare and have been reported to show an incidence of less than 0.5% of all endocarditis cases with a predominance in males. This predominance is attributed to higher incidence of atherosclerosis in males as compared to females .

- These occur mostly after stent implantation or sometimes in immuno compromised individuals ie. patients having HIV, diabetes or on treatment with immunosuppressive drugs.

- In rare cases, these can also occur spontaneously

TYPES OF CORONARY ANEURYSM (PCI RELATED)

- Type I aneurysm demonstrates rapid early growth with pseudoaneurysm formation which is detected within 4 weeks of implantation. Its rapid formation may be attributed to arterial injury related to the procedure rather than response of the body to the stent, polymer, and drug.

- Type II aneurysm can be subacute to chronic and is usually detected when patient comes for mandatory follow up or incidentally during angiography for recurrent symptoms. It usually appears after 6 months of stent placement. The clinical presentation in this type is highly varied from being asymptomatic to angina . Formation of type II aneurysm may be contributed by response of coronary arteries to either metal stent, polymer, and/or drug.

- Type III aneurysm is mycotic or infectious and Staphylococcus aureus is the most common microorganism causing microembolization to vasa vasorum or invasion of vessel wall in this type.

TREATMENT OPTIONS

- MEDICAL MANAGEMENT
    - treat infectious cause
    - prevent thromboembolic complication

- PERCUTANEOUS INTERVENTION
    - conventional stent implantation
    - covered stent implantation
    - coil embolisation

- SURGICAL MANAGEMENT
    - Resection
    - Ligation
    - CABG

CONCLUSION

- Mycotic aneurysms of coronary arteries are rare but serious, life-threatening conditions. These must be suspected in patients who develop fever and chest pain after stent implantation. Early onset infections may be controlled with antibiotics and anticoagulants. However, each case has to be managed individually as there are no guidelines due to paucity of cases

THANK YOU……