CASE REPORT

LEFT MAIN STEM CLOT: A MANAGEMENT DILEMMA

Abdul Wajid Khan Faisal[a*], Sadia Nasim[a], Junaid Salahuddin[a]

[a]Punjab Institute of Cardiology, Lahore.

Date of Publication: 01-03-2025

SUMMARY

LMCA thrombus is a rare event and a management challenge as well. Here we report a case of 56 years old male presented with anterior wall myocardial infarction. Angiography showed clot in LMS and totally occluded LAD with dominant left system. Patient managed conservatively with thrombolytics followed by anti-thrombotic drugs. Patient responded to the treatment and discharged on 9th day with repeat angiogram showing normal LMS and well patent large sized LAD.

BACKGROUND:

LMS thrombus is a clinically rare event. In acute coronary syndrome patients, the incidence is estimated to be ~0.8%.[1] According to the literature, we can treat these patients with urgent coronary artery bypass grafting (CABG), percutaneous coronary intervention (PCI), anticoagulation using heparin or glycoprotein IIb/IIIa inhibitors, intracoronary thrombolysis, aspiration of thrombus as reperfusion strategies.[2] The management choice of LMS thrombus usually depends on the severity of the disease. So far there are no clear guidelines for choosing the best management strategy for treating such patients.

CASE PRESENTATION:

A 56 years old male, smoker presented in the emergency department of Punjab Institute of Cardiology, Lahore with history of chest pain of seven hours duration. He was diagnosed as a case of Acute anterior wall ST elevation myocardial infarction (ECG shown in Fig-1). He was taken to the Cath Lab with intent of primary PCI. Angiography showed clot in Left Main Stem and totally occluded Left Anterior Descending Artery (LAD). (Fig-2) Left Circumflex Artery was a dominant vessel, so PCI was not done due to the risk of thrombus shift into it. Opinion was sought from our chief surgeon, he refused due to very high-risk CABG.

Echocardiogrphy at the time of admission was not done. After streptokinase, his bed side Echo demonstrated wall motion abnormalities in anterior septum with EF of 35%, no images available.

All labs were normal except for the mildly elevated white cell count and cardiac enzymes. During admission his renal function was mildly impaired which later on improved to normal.

We decided to manage him medically. Injection Streptokinase (the only thrombolytic available in our center) given. (Fig-3 showing ECG after thrombolysis) Patient developed cardiogenic shock and pulmonary edema, which was managed with ionotropic support and IV Lasix. Patient remained on ionotropic support for 1 week, he also received Inj. Enoxaprine 60 mg BD along with DAPT during hospital stay. After seven days patient became stable, Ionotropic support tapered off. Check injection repeated, showed no clot in LMS and patent LAD without requiring stenting or surgery. (Fig-4)

OUTCOME AND FOLLOWUP:

After eight days patient discharged in stable condition (Fig-5 showing ECG before discharge). After two months of follow up patient visited the hospital. He was having good functional capacity, can climb two flight of stairs and doing well on medical management comprising of ARNI, DAPA and other anti-ischemic drugs. His echo

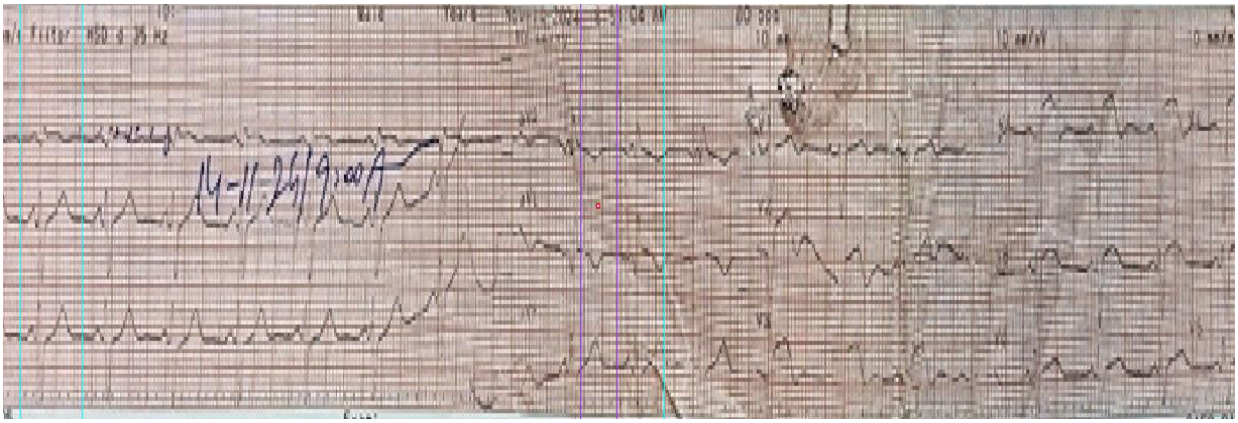

Fig-1: ECG at the time of presentation showing anterior wall MI.

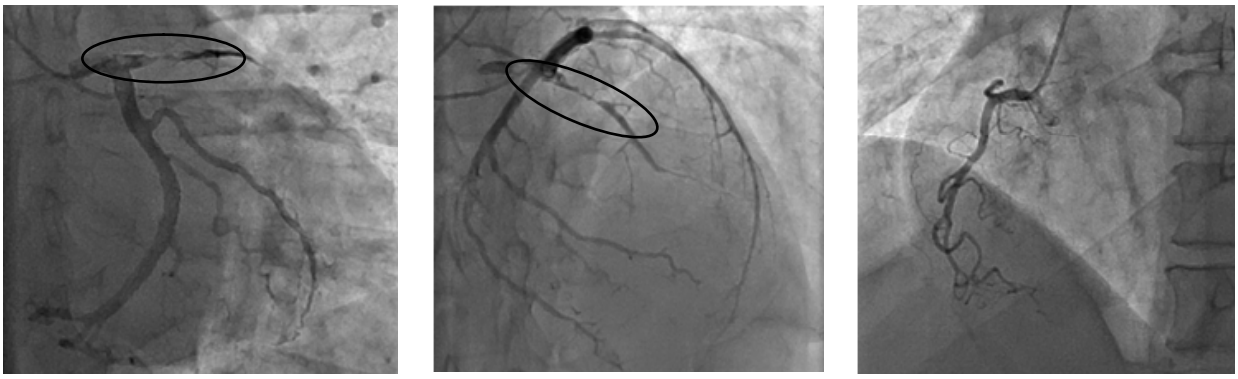

Fig-2: Angiogram at the time of presentation; clot can be seen in LMS and LAD.

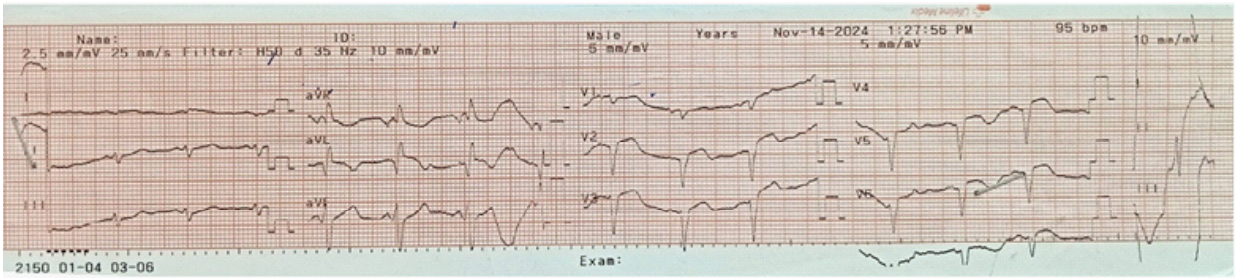

Fig-3: ECG after Thrombolysis showing Q waves in anterior leads.

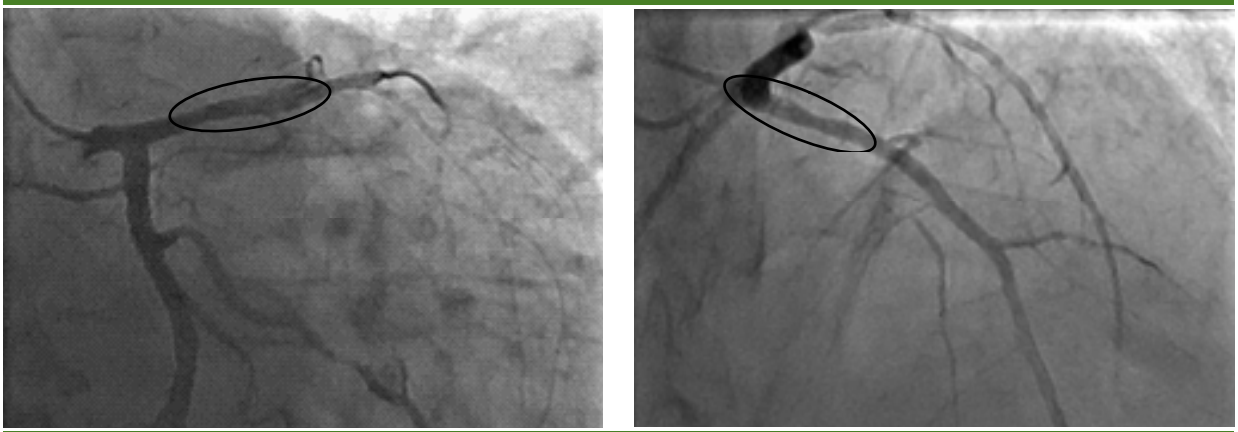

Fig-4: Angiogram 09 days after the treatment; no clot in left main and patent LAD.

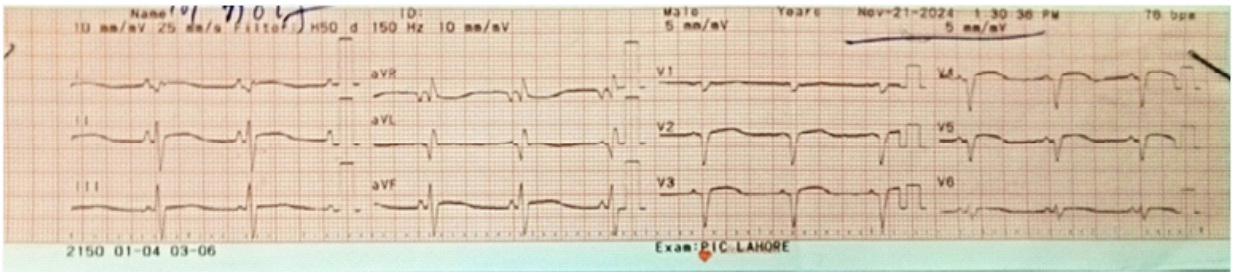

Fig-5: ECG before discharge showing Q waves V1 to V6.

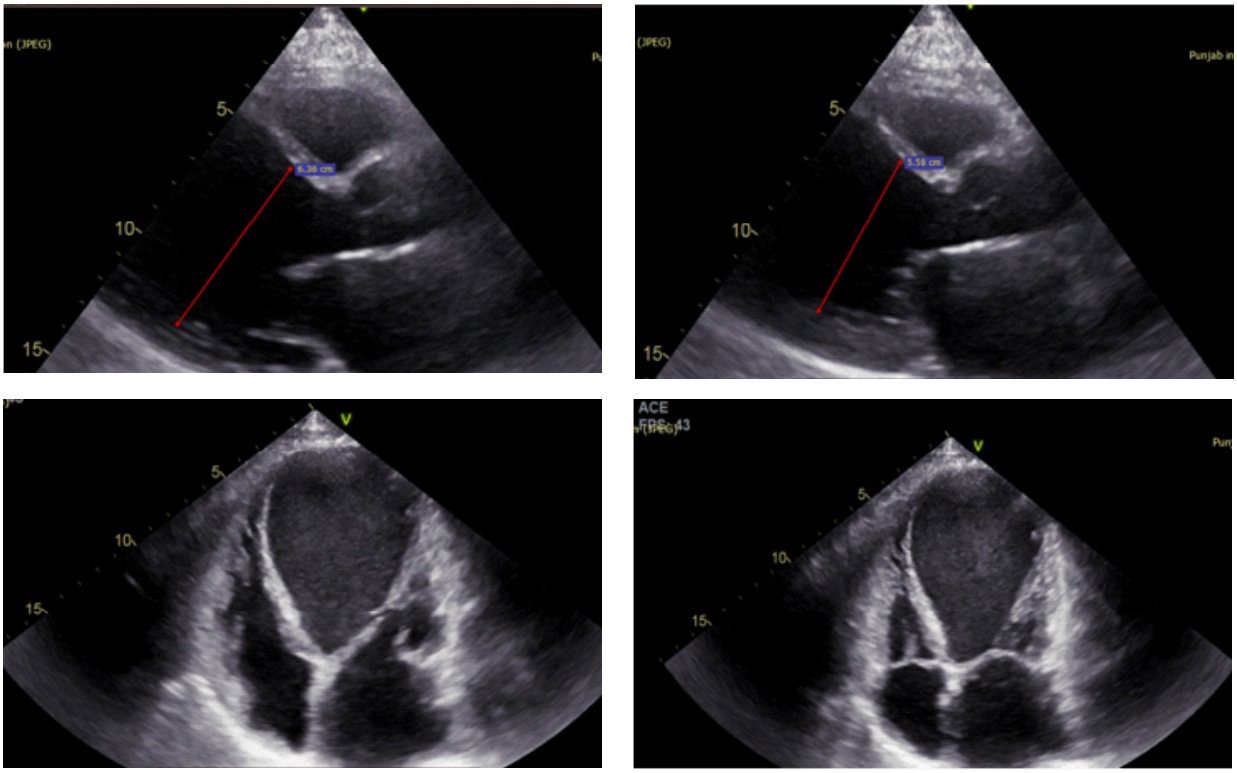

Fig-6: After 6 weeks follow up Echo shows dilated LV with severe dysfunction.

was done showing dilated LV with severe LV systolic dysfunction. (Fig-6) Our patient did well with the conservative approach initially but patient died within 6 months.

DISCUSSION:

Management of a LMS clot typically involves either CABG or PCI, depending on the patient's anatomy and clinical situation, with immediate aggressive medical therapy including anticoagulation and antiplatelet medications to prevent further clot formation; a "heart team" approach is crucial for decision-making for the best treatment strategy. Various people managed the patient in different ways based on the clinical scenario.

Johnsen et al managed their patient with using anticoagulation and dual anti-platelet therapy.[3] Matta et al treated the patient using thrombus aspiration catheter, heparin and dual anti-platelet therapy.[4] Marchese et al treated the patient with PCI using manual thrombus aspiration, super-selective adenosine and intracoronary bolus of abciximab followed by stenting of LMS to proximal LAD with drug eluting stent.[5] Malik et al managed the patient with CABG after a heart team discussion.[6] Our patient did well with the conservative approach initially but patient died within 6 months.

LEARNING POINTS / TAKE HOME MESSAGE

- Revascularisation with CABG and PCI is the standard treatment of LMS thrombus.
- Our patient responded to a conservative medical treatment strategy using thrombolytic followed by antithrombotic therapy initially, but he could not make it too long.

References:

1. Klein A.J., Casserly I.P., Messenger J.C. Acute left main coronary arterial thrombosis-a case series. J Invasive Cardiol. 2008;20(8):E243–E246.
2. Akcay M. Evaluation of thrombotic left main coronary artery occlusions; old problem, different treatment approaches. Indian Heart J. 2018 Jul-Aug;70(4):573-574. doi: 10.1016/j.ihj.2017.09.006. Epub 2017 Sep 14. PMID: 30170655; PMCID: PMC6117801.
3. Johnsen J, Kristensen SD, Støttrup NB. Minimally invasive treatment of left main coronary artery thrombosis in a young patient with COVID-19. BMJ Case Reports CP 2022;15:e250011.
4. Matta A, Elenizi K, Elbaz M, Roncalli J. Left main coronary artery thrombus after cannabis consumption: a case report. Eur Heart J Case Rep. 2021 Jun 14;5(6):ytab179. doi: 10.1093/ehjcr/ytab179. PMID: 34222781; PMCID: PMC8244647.
5. Marchese A, Paradies V, Basile M, Iorio E, Palmiotto A, Fiore F, Musumeci G, de Waha S, Thiele H, Wan S, Yaku H. How should I treat a massive left main coronary artery thrombosis in a 49-year-old woman in the context of cardiogenic shock? EuroIntervention. 2016 Apr 8;11(14):e1687-90. doi: 10.4244/EIJV11I14A321. PMID: 27056129.
6. Malik J, Zahid T, Majedi O, Ishaq U, Faizi MI. A Widow-Maker and a Doppelganger: An Anomalous Case of the Coronaries. Cureus. 2020 Aug 7;12(8):e9603. doi: 10.7759/cureus.9603. PMID: 32923207; PMCID: PMC7478500.