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MULTIPLE EMBOLIC EVENTS LEADING TO DEATH AFTER STEMI: A CLINICAL CASCADE

[1]*Dr. Khaoula Aboubakr, [2]Dr. Amal Hsain, [3]Dr. Hanae El Ghiati, [4]Prof. Ilyasse Asfalou, [5]Prof. Zouhair Lakhal, [6]Prof. Aatif Benyass

[1,2,3]MD, Cardiology Center, Hospital Mohamed V, Rabat, Morocco.
[4]Professor, Cardiology Center, Military Hospital Mohamed V, Rabat, Morocco.
[5,6]Professor, Cardiology Center, Hospital Mohamed V, Rabat, Morocco.

***Corresponding Author: Dr. Khaoula Aboubakr**

MD, Cardiology Center, Hospital Mohamed V, Rabat, Morocco.

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ABSTRACT

Left ventricular thrombus (LVT) is a recognized complication of acute myocardial infarction (AMI) and carries a high risk of systemic embolization. We report the case of a 72-year-old woman with poorly controlled hypertension who presented 28 hours after onset of anterior ST-segment elevation myocardial infarction (STEMI). Transthoracic echocardiography revealed a large apical thrombus measuring 36 × 21 mm. Despite immediate dual antiplatelet therapy and therapeutic-dose anticoagulation, she developed an acute ischemic stroke within one hour, followed by bilateral lower-limb ischemia caused by complete infrarenal aortic thrombosis. Emergent surgical thrombectomy was attempted, but the patient suffered cardiac arrest and could not be resuscitated. This case highlights the exceptional embolic risk of large, mobile LVT and underscores the need for early recognition, vigilant monitoring, and aggressive management strategies in high-risk patients.

KEYWORDS: Left ventricular thrombus, STEMI, systemic embolization, anticoagulation, acute myocardial infarction.

CASE REPORT

A 72-year-old woman with poorly controlled hypertension, her only known cardiovascular risk factor, presented to the emergency department 28 hours after onset of persistent chest pain. Electrocardiography showed ST-segment elevation in the anteroseptoapical leads, consistent with anterior STEMI.

Transthoracic echocardiography demonstrated a large left ventricular apical thrombus measuring 36 × 16 mm. Dual antiplatelet therapy and therapeutic-dose anticoagulation were initiated promptly according to current guidelines.

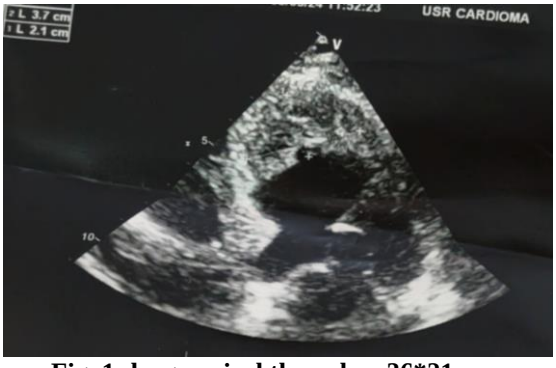

Fig. 1: large apical thrombus 36*21mm.

Approximately one hour after admission to the cardiac intensive care unit, the patient developed sudden neurological deterioration, including aphasia and right-sided hemiplegia. Cerebral imaging confirmed an acute ischemic stroke in the left middle cerebral artery

territory. Intravenous thrombolysis was administered promptly.

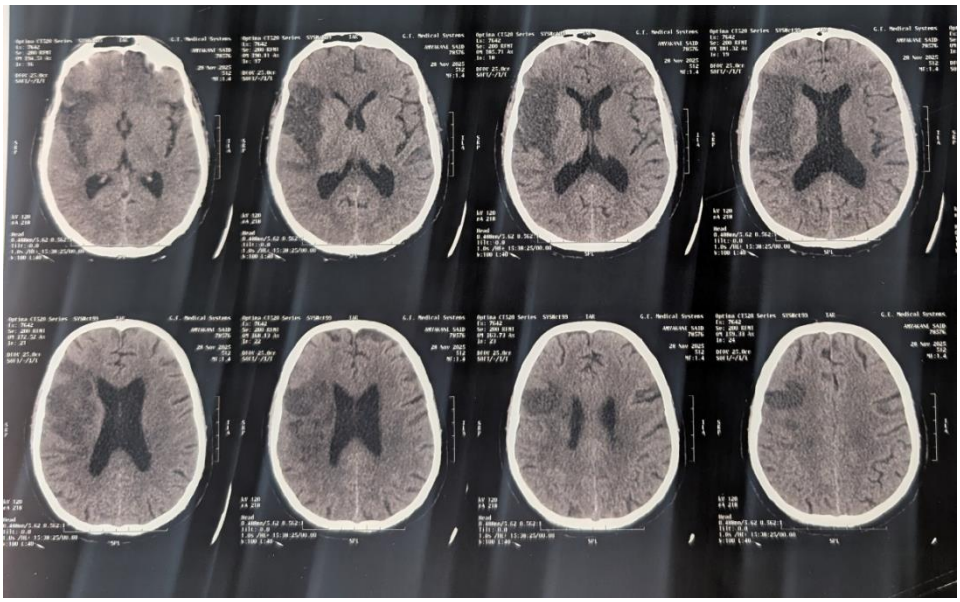

Fig. 2: Acute ischémic stroke in the left middle cerebral artery.

Later that day, progressive mottling and marked coldness of both lower limbs raised concern for acute limb ischemia. CT angiography revealed complete thrombosis of the infrarenal abdominal aorta extending into the iliac and femoral arteries. The patient was taken emergently to the operating room for thrombectomy. Unfortunately, she suffered a cardiac arrest during the procedure and could not be resuscitated.

DISCUSSION

Left ventricular thrombus remains a serious complication of anterior myocardial infarction despite modern reperfusion strategies. Predictors of LVT formation include anterior MI, reduced left ventricular ejection fraction, apical aneurysm, and elevated inflammatory markers, highlighting the roles of myocardial damage, regional wall-motion abnormalities, and systemic inflammation in thrombogenesis.[1,2,3]

Large, protruding, or mobile thrombi are associated with a high risk of early systemic embolization, often occurring before anticoagulation can stabilize the clot. Transthoracic echocardiography is the first-line imaging modality, while cardiac magnetic resonance imaging offers higher sensitivity and specificity, especially for small, mural, or laminar thrombi.[5]

Anticoagulation with vitamin K antagonists remains the standard for large or mobile thrombi, though direct oral anticoagulants (DOACs) show comparable efficacy and safety.[6,7] High-risk patients may require intensified strategies, including parenteral anticoagulation, rapid transition to oral therapy, and close repeat imaging.

In this patient, multiple high-risk features—large apical thrombus, delayed presentation, extensive anterior wall-motion abnormalities, and elevated inflammatory markers—contributed to thrombus instability. Despite immediate guideline-directed therapy, she experienced multiple catastrophic embolic events, illustrating the limitations of current anticoagulation strategies in unstable thrombi.

CONCLUSIONS

Large, mobile left ventricular thrombi after anterior STEMI can result in rapid and fatal systemic embolization, even with early anticoagulation and dual antiplatelet therapy. Early detection of high-risk features, vigilant monitoring, and consideration of aggressive therapeutic strategies are crucial to prevent fatal complications.

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