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Left ventricular thrombus found in a patient with ARDS and stress-induced cardiomyopathy requiring veno-arterial ECMO.

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68 year-old male with a history of acute leukemia with complete remission after bone marrow transplant 4 months ago, coronary disease s/p LAD stents about 14 years ago with no chronic anti-platelet medication, and repeated episode of DVT despite appropriate anti-coagulation, presented with viral pneumonia (rhinovirus).

On postoperative day (POD)#1, ECMO flow suddenly dropped from 4.8 L/min to 2.5 L/min. A bedside hemodynamic trans-esophageal echocardiography (hTEE) showed acute thrombus in the left atrium (LA) and left ventricle (LV). Heparin was increased to the goal PTT 60-70.

On POD#3, the patient developed an asystole event followed by ST segment changes on EKG. Cardiac catheterization revealed a newly diagnosed total occlusion of the LAD stent. A successful percutaneous coronary intervention was performed after giving a loading dose of clopidogrel.

Subsequent hTEE showed left ventricle outflow tract (LVOT) thrombus.

ECMO

Despite optimal medical management, the patient quickly progressed into ARDS.

CT chest: no PE, diffuse consolidation.

Echocardiography: Takotsubo cardiomyopathy
Severe acute systolic dysfunction with ejection fraction of 20%
No intra-cavity thrombi were seen.

ABG: profound hypoxia and hypercapnia
pH 7.27, PaCO2 60, PaO2 56,
despite FiO2 100%, PEEP 14.

Veno-arterial ECMO was initiated.

Heparin was started as per standard protocol with target PTT of 55-65.

Progress

On POD#1, ECMO flow suddenly dropped from 4.8 L/min to 2.5 L/min.
A bedside hemodynamic trans-esophageal echocardiography (hTEE) showed acute thrombus in the left atrium (LA) and left ventricle (LV).
Heparin was increased to the goal PTT 60-70.

On POD#3, the patient developed an asystole event followed by ST segment changes on EKG. Cardiac catheterization revealed a newly diagnosed total occlusion of the LAD stent. A successful percutaneous coronary intervention was performed after giving a loading dose of clopidogrel.
Subsequent hTEE showed left ventricle outflow tract (LVOT) thrombus.

POD #1 → Left atrium thrombus on hTEE image
POD #1 → Left ventricular thrombus
POD #3 → Left ventricular outflow thrombus

POD #1 → Left atrium thrombus on hTEE image
POD #1 → Left ventricular thrombus
POD #3 → Left ventricular outflow thrombus

Progress

On POD#5, he was found to be comatose. Head CT showed large stroke in left MCA territory.

Subsequently care was withdrawn as per family request and the patient expired.

Conclusions

This case illustrated that hTEE can be used to visualize LA, LV and LVOT thrombi.

For a patient with leukemia, status post bone marrow transplant and in a potential hypercoagulable state, standard heparin protocol may not be sufficient; thus, customized anticoagulation management may be mandated.

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