Intracoronary and left ventricular thrombi in a 29-year-old COVID-19 convalescent with ST-segment elevation myocardial infarction

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A 29-year-old overweight male with no previous medical history and without family history of premature myocardial infarction, who recently recovered from a mild COVID-19 disease treated at home, was admitted for anterior and lateral ST-segment elevation myocardial infarction (STEMI).

Transthoracic echocardiography (Supplementary material, *Video A1*) revealed left ventricular ejection fraction (LVEF) of 55% with apex akinesis and a left ventricular (LV) thrombus in the apical region. Coronary angiography showed a large thrombus in the proximal left anterior descending artery (LAD) with Thrombolysis in Myocardial Infarction (TIMI) 2 flow (Figure 1A, Supplementary material, *Video SA2*). Successful aspiration thrombectomy was performed, and TIMI 3 flow was restored (Figure 1B, Supplementary material, *Video SB1*). The aspirated thrombus was analyzed using spectroscopy presented in hematoxylin and eosin (H&E) staining and color map distribution of organic matter indicating lipid-rich areas, hem and lipid class, and fibrin class (Figure 1C). Intravascular ultrasound imaging demonstrated an eccentric plaque in

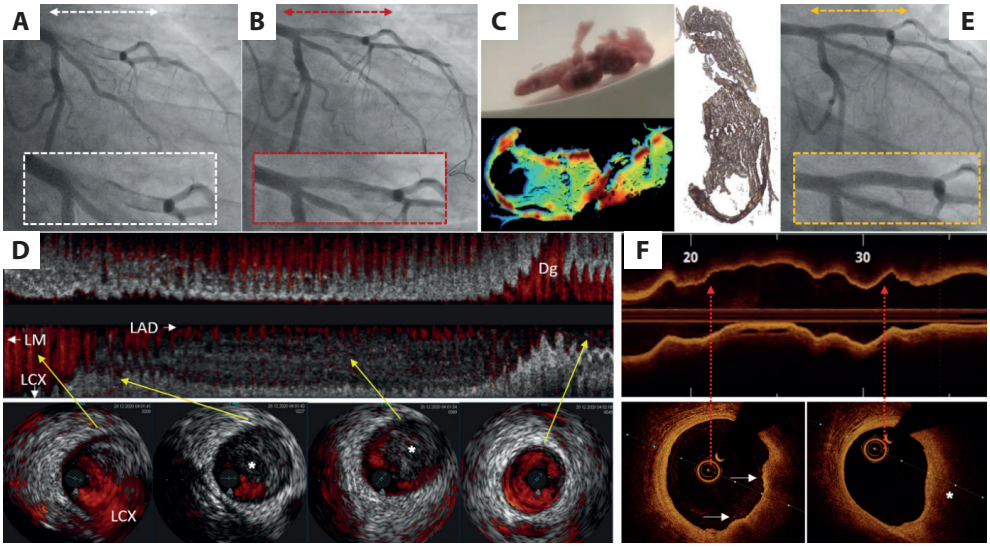

Figure 1. Multimodality assessment of the patient with ST-segment myocardial infarction successfully treated with a non-stenting strategy. Baseline coronary angiography with haziness in the proximal left anterior descending artery (**A**) and angiography after thrombectomy (**B**). **C.** Aspirated thrombus with results of Fourier and Raman Spectroscopy. **D.** Intravascular ultrasound imaging with a plaque in the proximal part of the LAD covered by thrombus protruding to the medial LAD (asterisk). **E.** Control angiography and optical coherence tomography (**F**) with a thrombus (arrow) and lipid plaque (asterisks)

Abbreviations: LAD, left anterior descending artery; LCx, left circumflex artery; LM, left main

the ostial and proximal LAD covered by a residual thrombus (Figure 1D, Supplementary material, *Video SD1*), which led to the administration of eptifibatide and stenting deferral. The patient received enoxaparin along with aspirin and ticagrelor. Cardiac magnetic resonance confirmed thrombus in the LV apex (Supplementary material, *Figure SA1*). Control coronary angiography performed 8 days after the index procedure showed no significant stenosis (Figure 1E). Optical coherence tomography demonstrated almost complete thrombus resolution in the proximal part of the LAD without any signs of plaque rupture (Figure 1F, Supplementary material, *Video SF1*). Since there was no significant lesion in the LAD, we decided not to perform stenting, and the patient was discharged on warfarin (target INR 2–2.5) and clopidogrel. The patient was assessed for hypercoagulability state in the outpatient department; however, no abnormalities were found. Echocardiography performed 6 months after hospital discharge showed LVEF of 60% with hypokinesis of the apex. Furthermore, the patient did not develop any new symptoms or needed another hospitalization.

SARS-CoV-2 infection increases thromboembolic risk including a higher risk of STEMI [1]. Intracoronary thrombus formation in young patients free of significant stenosis is infrequent during severe infection, including COVID-19. It is yet to be determined for how long patients in the convalescent phase of COVID-19 may have an increased risk of cardiovascular events.

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/kardiologia_polska.

Article information

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