

Non-ST-elevation myocardial infarction with acute left main coronary artery occlusion and a trifurcation

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KEYWORDS: Non-ST-elevation myocardial infarction, left main coronary artery, trifurcation.

CITATION: *Cardiol Croat.* 2025;20(1-2):8-9. | <https://doi.org/10.15836/ccar2025.8>

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Introduction: Acute occlusion of the left main coronary artery is a rare event but with high mortality¹. As the LMCA (left main coronary artery) is responsible for the blood supply of the whole left ventricular muscle and the anterior two-thirds of the interventricular septum and the whole septum if dominant, its sudden occlusion is a life-threatening condition causing malignant arrhythmias and cardiogenic shock².

Case report: We present a 59-year-old patient who was admitted to the Coronary Care Unit because of non-ST-elevation myocardial infarction (NSTEMI). The patient had no prior medical history. The patient was initially hemodynamically stable and urgent coronary angiography was performed. RCA (right coronary artery) had moderate stenoses in the proximal and distal part and gave collaterals to the left system (**Figure 1**). Initial angiogram showed acute occlusion of the LMCA (**Figure 2**). After wire passage and extensive predilatations, it was evident that LMCA had a trifurcation-LAD (left anterior descending artery), RIM (ramus intermedius), and LCx (left circumflex artery). Additional protective wires were placed in LCx and RIM (**Figure 3**). During the procedure, the patient became hypotensive, so dobutamine and noradrenalin were administered in continuous infusion which stabilized the patient. We opted for a provisional approach and 3 drug-eluting stents (DES) (2.75/33 mm, 3.0/23 mm, and 3.5/38 mm) were placed from mid-LAD to ostial LMCA. Stents were post-dilated with NC (noncompliant) balloons 3.0/15 mm and 4.0/15 mm with a nice final result and TIMI (Thrombolysis in Myocardial Infarction) 3 flow in all 3 vessels (**Figure 4**). The patient was returned to the Coronary Care Unit in stable condition and the next day weaned of inotropes and vasopressors. During hospitalization, an echo showed mildly reduced ejection fraction (45%) of the left ventricle, without valvular disease or pulmonary hypertension.

Conclusion: After a total of 7 days, the patient was discharged home from the hospital with dual antiplatelet therapy (aspirin and ticagrelor), statin, betablocker, ACE inhibitor, and mineralocorticoid receptor antagonist. The patient underwent another coronary angiography 19 months after the initial

RECEIVED:
February 4, 2025

ACCEPTED:
February 14, 2025

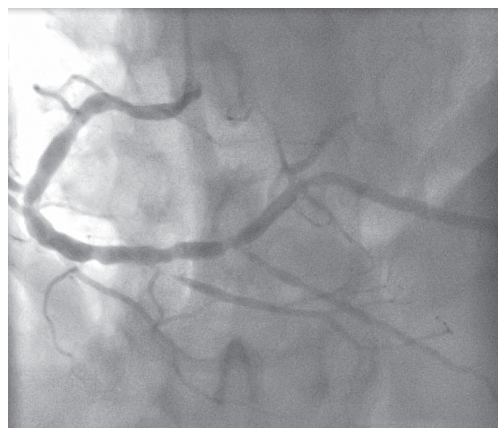


FIGURE 1. Right coronary artery with moderate stenoses in the proximal and distal part.



FIGURE 2. Acute occlusion of the left main coronary artery.

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event. Coronary angiography showed patent stents in the LAD and LMCA and patent RIM and LCx (**Figure 5**). He now had significant stenosis of the distal RCA which was treated with an implantation of 1 DES.

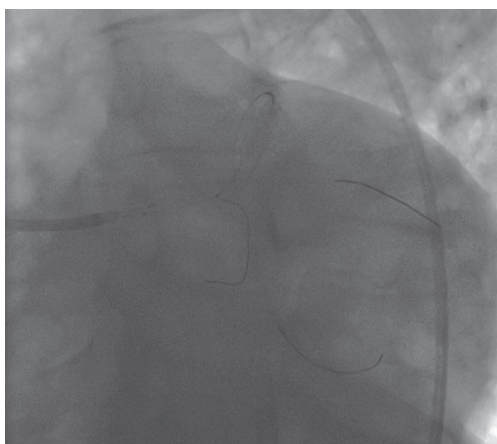


FIGURE 3. Left main coronary artery trifurcation.



FIGURE 4. Final result after placement of 3 drug eluting stents.

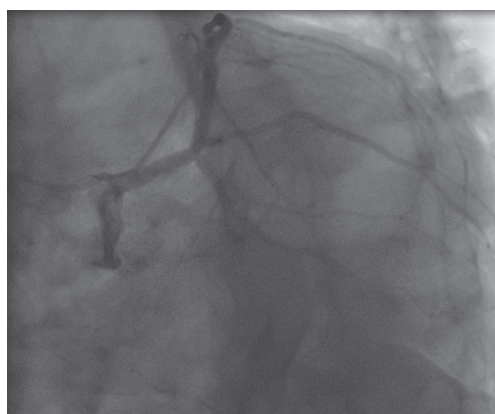


FIGURE 5. Repeat coronary angiography after 19 months.

LITERATURE

1. Calvão J, Braga M, Brandão M, Campinas A, Alexandre A, Amador A, et al. Acute total occlusion of the unprotected left main coronary artery: Patient characteristics and outcomes. *Rev Port Cardiol*. 2023 Aug;42(8):723-729. <https://doi.org/10.1016/j.repc.2022.11.007>
2. Ibdah RK, Alrabadi N, Rawashdeh SI, Al-Ksasseh A, Habib A, Hijazi E. A 44 years-old male patient surviving total occlusion of the left main coronary artery (STEMI) accompanied with cardiogenic shock. *Ann Med Surg (Lond)*. 2020 Nov 27;60:610-613. <https://doi.org/10.1016/j.amsu.2020.11.062>