

Left bundle branch block as a sign of coexisting left main and right coronary artery occlusion, successfully treated with percutaneous coronary intervention

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A 53-year-old male, active smoker with hypertension, hyperlipidemia, history of stroke and type 2 diabetes mellitus, was admitted to the hospital with symptoms of dyspnea and chest pain (class IV in the Canadian Cardiovascular Society scale).

Physical examination revealed cachexia, dyspnea with rales and crackles on auscultation (Killip–Kimball II). Transthoracic echocardiography showed enlarged, whole-hypokinetic left ventricle (left ventricular end-diastolic dimension/left ventricular end-systolic dimension = 68 mm/59 mm) with reduced ejection fraction (20%–25%) and coexisting moderate functional mitral regurgitation, without other mechanical complications. Additionally, a moderate amount of fluid in the right pleural cavity was diagnosed. Electrocardiogram showed sinus rhythm of 90/min conducted with the left bundle branch block (LBBB). The serum troponin I was positive.

In the emergency department, intravenous loop-diuretic, unfractionated heparin (5000 IU) were administered, following the prior loading doses of clopidogrel (600 mg) and acetylsalicylic acid (300 mg) given in the ambulance.

Coronary angiogram revealed chronic-total-occlusion of the right coronary artery with coexisting occlusion of the left main (LM) as a culprit lesion (Figure 1A, 1B). Due to advanced atherosclerosis, initial double-intravenous bolus of eptifibatide was administered (followed by the 24-h IV-infusion at the dose of 2 µg/kg/min) and a rescue percutaneous coronary intervention was performed using the left-radial approach with

EBU3.5-Guide-Catheter (6 F) (Medtronic Ireland, Galway, Ireland). During the procedure we used: BMW Universal-II (Abbott-Vascular, Santa-Clara, California, US), Sion (Asahi-INTECC Co. Aichi, Japan), and Fielder XT (Asahi) guide-wires. After LM opening with a 2 mm balloon-catheter (Figure 1C), we revealed a critical stenosis including: the LM, ostium of the left anterior descending (LAD), circumflex (Cx), and the intermediate artery (IM) without signs of residual thrombus (Figure 1D). Due to significant calcification, we performed a high pressure (24 atm) pre-dilatation of the LM alongside with LAD and Cx with a non-compliant balloon 3.0 × 15 mm. Using the Culotte technique, we implanted two coronary drug-eluting stents Orsiro 3 × 18 mm (Medtronic) into Cx and XiencePRO 3.5 × 18 mm (Abbott) into LAD. Afterwards, we performed optimization of: Cx/IM and LM/LAD/Cx with the kissing balloon technique using 3 × 5 mm and 3.5 × 15 mm (14 atm) catheters and subequal proximal-optimization technique in the LM using the non-compliant 4 × 8 mm (18 atm) balloon. During the procedure catecholamines were used to obtain hemodynamic stabilization, without need for additional mechanical left ventricle function support. The patient was discharged after 13 days of hospitalization with mild improvement of the left ventricle function, previously switched to ticagrelor from clopidogrel. Due to persistent LBBB, an implantation of cardiac resynchronization therapy with defibrillator was scheduled, following the ejection fraction assessment after 3 months of an optimal medical treatment.

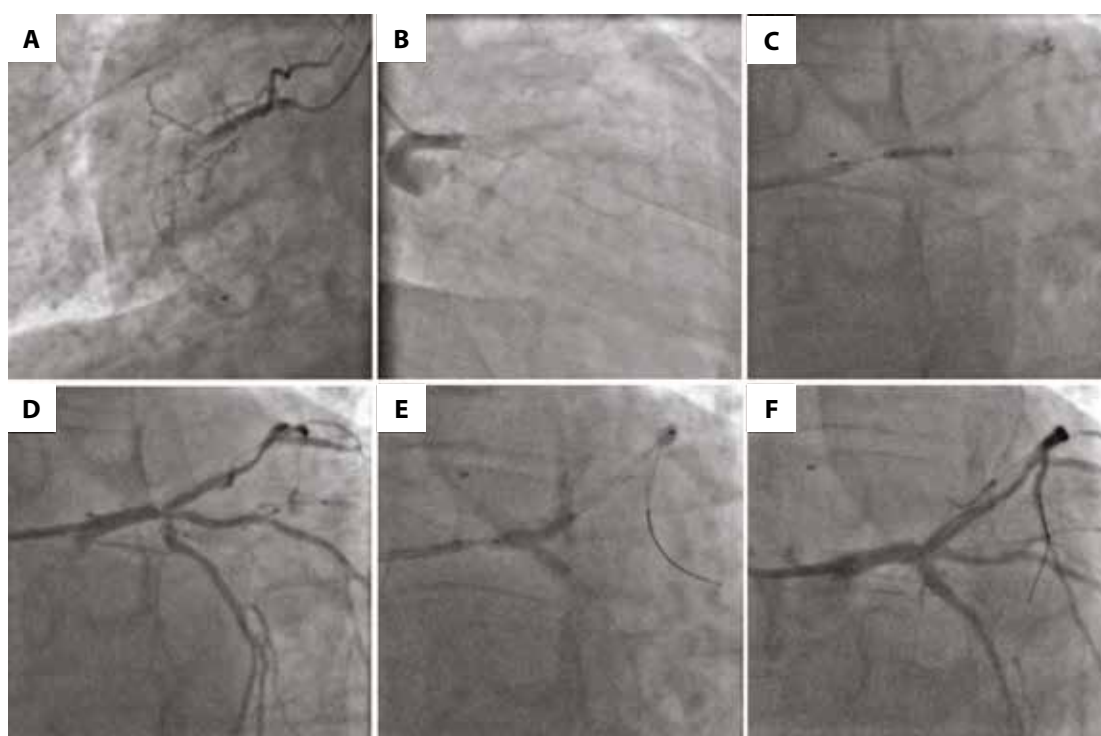


Figure 1. A. Coronary angiography of the right coronary artery. B. Coronary angiography of the left main. C. Lesion crossing with a 2 mm balloon. D. Left main after pre-dilation. E. Kissing balloon optimization of the left main trifurcation. F. Final result of the procedure

Acute coronary syndrome due to the LM occlusion is characterized by relatively high mortality [1, 2]. This location of the culprit lesion is associated with a suggestive electrocardiogram pattern, including the widespread ST depression in the precordial leads, accompanied by the ST segment elevation in the aVR and V1 and rarely ST elevation myocardial infarction [3]. In this case, the electrocardiogram revealed the LBBB, which is rather uncommon. While some data suggests that the one-stent technique can be suitable for dealing with the LM bifurcation [4, 5], we used the two-stent Culotte technique, with the multiple kissing-balloon inflation (Figure 1E). Such an approach made it possible to obtain optimal angiographic results (Figure 1F). The presented case demonstrates that even extremely advanced coronary artery disease can be successfully treated with the two-stent technique by 6 F radial access without additional mechanical circulatory support.

Supplementary material

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

Article information

Conflict of interest: None declared.

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