Successful bailout T-stenting for iatrogenic coronary dissection involving left main stem bifurcation: "first, do no harm"

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A 58-year-old woman with a history of hypertension and hyperlipidemia was admitted to our nonsurgical center due to acute coronary syndrome. Transradial coronary angiography showed a normal dominant right coronary artery. The left coronary system was engaged with a diagnostic 6F Judkins Left 3.5 catheter. The initial views (FIGURE 1A; Supplementary material, *Video S1* and *S2*) showed a normal left main stem (LMS) with unobstructed left anterior descending (LAD) and left circumflex (LCx) arteries. However, a subsequent contrast injection demonstrated an iatrogenic LMS dissection mimicking complete proximal occlusion of the LMS branches (FIGURE 1B; Supplementary material, *Video S3*). The patient developed severe chest pain, ST-segment elevation on electrocardiography, and a significant blood pressure drop. Analgesia, oxygen, fluid resuscitation, and inotropic support were administered immediately. It was decided to perform bailout percutaneous coronary intervention (PCI) since coronary artery bypass graft surgery was not an available prompt option. A 6F Judkins Left 3.5 guide catheter was used and 2 Balance Middle Weight guidewires (Abbott Cardiovascular, California, United States) were advanced through the intraluminal LCx and LAD branches, while the second operator was setting an intra-aortic balloon pump (FIGURE 1C; Supplementary material, *Video S4*). A Resolute Onyx 3.5 × 26 mm (Medtronic, Minneapolis, Minnesota, Unite States) drug eluting stent (DES) was deployed distally to seal the dissection (white arrow, FIGURE 1C) in the LCx. Then, a second Resolute Onyx 4.0 × 30 mm DES (Supplementary material, *Video S5*) was deployed from the LMS ostium into the proximal LCx (FIGURE 1D). Both stents were postdilated at 20 atm with noncompliant balloons. Following the proximal optimization technique of the LMS stent with a 4.0 × 15 mm NC balloon, we successfully managed to cross a Sion blue guidewire (Asahi Intecc, Seto-shi, Aichi, Japan) into the "true lumen" LAD through the distal LMS stent struts (Supplementary material, *Videos S6* and *S7*). A Resolute Onyx 3.5 × 15 mm DES was deployed in the proximal LAD extending up to the LAD ostium (FIGURE 1E). A residual dissection in the mid-LAD (Supplementary material, *Video S8*) was sealed with a further Resolute Onyx 2.75 × 38 mm DES. Final kissing balloon inflation with 2 noncompliant 3.5 × 12 mm balloons was performed at 12 atm with good final flow in all branches (FIGURE 1F; Supplementary material, *Video S9*). The patient recovered well. Six months later, stress cardiac magnetic resonance showed no evidence of inducible myocardial ischemia.

Iatrogenic LMS dissection is a potentially lethal complication of coronary angiography with a reported incidence of less than 0.1%.[1,2] Catheter manipulations, vigorous contrast injection, or unskilled wiring are the main causes.[1-3] In our case, one can remark that the catheter tip is directed towards the roof of the LMS (Supplementary material, *Video S2*), which might have caused a hydraulic dissection during injection, rapidly extended to the LAD and LCx arteries. Prompt bailout PCI or emergency coronary artery bypass graft surgery are the treatment options for iatrogenic LMS dissection.[3] When PCI is scheduled, wiring the true lumen is paramount, as wiring and stenting of the false lumen could

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Received: April 29, 2020.
Revision accepted: August 3, 2020.
Published online: August 13, 2020.
Kardiol Pol. 2020; 78 (11): 1185-1186
doi:10.33963/KP.15554

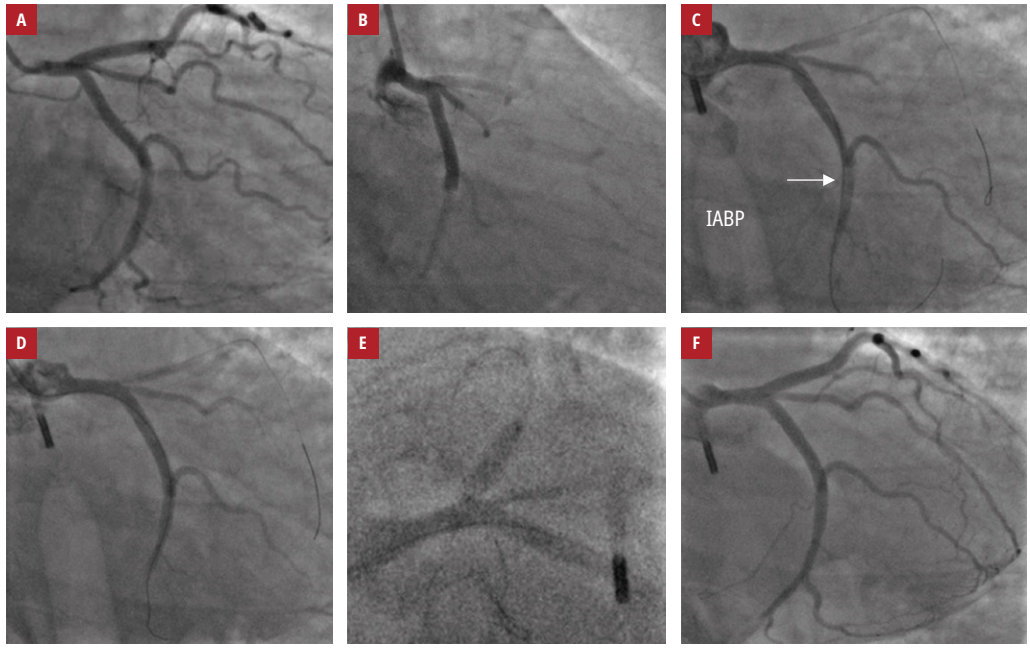

FIGURE 1 **A** – unobstructed left main stem (LMS), left anterior descending (LAD), and left circumflex (LCx) coronary arteries; **B** – proximal occlusion of LAD and LCx coronary arteries due to iatrogenic LMS dissection; **C** – a Resolute Onyx 3.5 × 26 mm (Medtronic, Minneapolis, Minnesota, United States) drug eluting stent (DES) deployed distally to seal the dissection (white arrow) in the LCx; **D** – a second Resolute Onyx 4.0 × 30 mm DES deployed from the LMS ostium into the proximal LCx; **E** – a Resolute Onyx 3.5 × 15 mm DES deployed in the proximal LAD extending up to the LAD ostium; **F** – a good final angiographic result
Abbreviations: IABP, intra-aortic balloon pump

be catastrophic leading to patient's death. In case of uncertainty, intravascular ultrasound can be extremely helpful to confirm true lumen wiring.[1] In our case, intravascular ultrasound imaging was not performed due to the hemodynamic instability of the patient.

SUPPLEMENTARY MATERIAL

Supplementary material is available at www.mp.pl/kardiologiapolska.

ARTICLE INFORMATION

CONFLICT OF INTEREST None declared.

HOW TO CITE Kassimis G, Theodoropoulos KC, Kontogiannis N, Raina T. Successful bailout T-stenting for iatrogenic coronary dissection involving left main stem bifurcation: "first, do no harm". Kardiol Pol. 2020; 78: 1185-1186. doi:10.33963/KP.15554

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