# Through the thorny paths of invasive cardiology – complex high-risk percutaneous intervention supported by the Impella system: a case report

**Alenka Tuličić-Mihelčić***,
**Renata Valenčak,**
**Saša Presežnik,**
**Marina Stanković,**
**Mato Čizmić,**
**Katica Cvitkušić Lukenda**

General Hospital "Dr Josip Benčević", Slavonski Brod, Croatia

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***ADDRESS FOR CORRESPONDENCE:** Alenka Tuličić-Mihelčić, Opća bolnica "Dr Josip Benčević", Andrije Štampara 42, HR-35000 Slavonski Brod, Croatia. / Phone: +385-98-771-551 / E-mail: alenkaveyron@gmail.com

**ORCID:** Alenka Tuličić-Mihelčić, https://orcid.org/0000-0002-4745-1066 • Renata Valenčak, https://orcid.org/0000-0001-6323-462X
Saša Presežnik, https://orcid.org/0009-0006-8893-6365 • Marina Stanković, https://orcid.org/0000-0002-8717-0357
Mato Čizmić, https://orcid.org/0009-0002-3820-9021 • Katica Cvitkušić-Lukenda, https://orcid.org/0000-0001-6188-0708

**Introduction**: The purpose of this case report is to demonstrate the complexity of percutaneous coronary interventions, the role of the Impella heart pump in providing adequate hemodynamic support, and the importance of the preparedness and education of all team members to successfully perform such high-risk and demanding procedures[1].

**Case report**: 77-year-old patient with significant comorbidities and multiple malignancies in remission underwent coronary angiography, which revealed multivessel disease – a chronic total occlusion (CTO) of the right coronary artery, 70% stenosis of the left main (LM) coronary artery, 90% stenosis of the left anterior descending artery (LAD), and diffuse changes in all coronary vessels. Due to significant comorbidities and extremely high surgical risk, the cardiac surgeon did not recommend surgical revascularization. The interventional cardiologists in our department decided to proceed with percutaneous coronary intervention (PCI) supported by the Impella system, as the patient already showed signs of hemodynamic instability during the angiography itself. Since the patient also had peripheral vascular disease, percutaneous transluminal angioplasty (PTA) and balloon dilatation of the femoral artery were first performed to allow placement of the Impella CP system into the left ventricle. Lesion preparation was carried out using rotational atherectomy, cutting and scoring balloons, and Shockwave intravascular lithotripsy (IVL). Intravascular ultrasound (IVUS) confirmed adequate lesion preparation, and two stents were implanted – distally 3.0x28 mm and proximally 3.5x44 mm – optimized by post-dilatation. Good stent expansion and apposition were confirmed by final IVUS, after which the Impella system was removed. Hemostasis was achieved using two Prostyle and one AngioSeal vascular closure device.

**Conclusion**: The patient was discharged home with stable vital signs, hemodynamically and cardiopulmonary compensated. Four months later, during a follow-up examination, he reported feeling well, without chest pain, and with optimal vital parameters.

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## LITERATURE

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