

Chronic total occlusions: the challenges in interventional cardiology

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Introduction: A chronic total occlusion (CTO) of coronary arteries is an absence of blood flowing through the coronary arteries that lasts for over three months.¹ Advanced technology and equipment, the experience of an operator, as well as the entire team, presents a challenge in the revascularization of CTO coronary arteries with a percutaneous coronary intervention (PCI) with the growing procedural success of up to 90%.

Case report: In the following case we will take a look at the successful opening of an in-stent chronic total occlusion of the right coronary artery. Firstly, an angiogram of the left coronary artery is done on the 59-year-old patient who has a documented coronary artery disease, and the symptoms of a stable angina pectoris. The angiogram of the left coronary artery is without significant pathological findings, with the appearance of collateral blood vessels on the right occluded coronary artery. On the right coronary artery (RCA), the angiographic readings of the middle segment show an occlusion of the stent that has been implanted eight years ago, and that has been auto collateralized. Due to the presence symptoms of angina and ultrasound-determined viability of the myocardium, CTO revascularization of the right coronary artery is justified. By the means of a standard antegrade technique, RCA is probed with a leading catheter using the right radial approach. By using additional advanced equipment in the sense of specialized coronary interventional wires and micro-catheters, the in-stent occlusion of the right coronary artery is rechanneled. Repeated dilatations with high-pressure balloons provide with a good angiographic result. Then, the drug-eluting stent is successfully implanted. Finally, the post-dilatation is facilitated – additional insertion of the stent into a stent using the TIMI 3 RCA flow. The success of an intervention implies a technically successful CTO revascularization with a <30% diameter of residual in-stent stenosis within the treated segment of the artery and the establishment of the TIMI 3 flow, with no complications during hospitalization (MACE: death, myocardial infarction, the occurrence of symptoms which require emergency PCI or surgical revascularization, tamponade which requires pericardiocentesis, or surgical intervention and a stroke).

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LITERATURE

1. Sianos G, Werner GS, Galassi AR, Papafaklis MI, Escaned J, Hildick-Smith D, et al; EuroCTO Club. Recanalisation of chronic total coronary occlusions: 2012 consensus document from the EuroCTO club. *EuroIntervention.* 2012 May 15;8(1):139-45. <https://doi.org/10.4244/EIJV811A21>