

## CASE REPORT

# Coronary Artery Dissection in the Left Main Treated with Stenting in a Patient with Multiple Re-infarction – Case Report

Nyulas Tiberiu<sup>1\*</sup>, Blendea Ciprian<sup>1,2</sup>, Barcan Andreea<sup>1</sup>, Bajka Balazs<sup>1,2</sup>, Korodi Szilamer<sup>1</sup>, Rat Nora<sup>1</sup>

<sup>1</sup> University of Medicine and Pharmacy of Tîrgu Mureş, Clinic of Cardiology, Tîrgu Mureş, Romania

<sup>2</sup> Cardio Med Medical Center, Department of Advanced Multimodal Imaging, Tîrgu Mureş, Romania

**Introduction:** In complex cases of multiple coronary artery stenosis, revascularization strategy could be essential for improving the life expectancy and quality of life. However, major complications are sometimes encountered during interventions, such as rupture of the atheromatous plaque with consequent dissection of the coronary artery, causing an acute coronary syndrome which requires immediate intervention from the operator. In the absence of an experienced interventional cardiologist a complication like this can be fatal. **Case presentation:** We present the case of a 67-years old patient, male, with a known history of cardiovascular disease, who presented in our service complaining of chest pain with tightening character, irradiation in the shoulder and left arm, respectively shortness of breath and fatigue. The patient presented a history of multiple infarctions, intervention and stenting on RCA and circumflex artery. Computed Tomographic Coronary Angiography provided detailed information on the location of the target lesions and was followed by a revascularization procedure. However, despite the complex pre-interventional assessment, while trying to engage the guide in the emergence of the circumflex artery, atherosclerotic plaque rupture occurred, causing a dissection of the coronary wall which extended retrogradely into the left main, requiring a rapid response from the operator. A coronary stent was implanted into the left coronary artery trunk, treating the dissection. **Conclusions:** Coronary artery dissection is a very serious complication that can occur during a complex revascularization procedure, requiring immediate intervention in order to save the patient's life.

**Keywords:** atheroma, revascularization, dissection

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## Introduction

Spontaneous coronary artery dissection is a very rare cause of acute coronary syndromes in young otherwise healthy patients with a striking predilection for the female gender. It was reported for the first time in 1931 at the autopsy of a 42-year-old woman [1]. Pretty published the first case of coronary artery dissection [1], while Forker reported the first angiographic diagnosis of such a case [2]. However, coronary artery dissection is encountered more frequent during a revascularization procedure and can put the life of the patient at a significant risk. We present the case of a patient with multiple revascularization procedures in the history, who presented a dissection of the left coronary ostium during a percutaneous coronary intervention.

## Case report

Patient aged 67, male, with a known history of cardiovascular disease, presented in our service complaining of chest pain with tightening character, irradiating in the shoulder and the left arm, accompanied by shortness of breath and progressive fatigue. The patient was diagnosed in 1999 with inferior myocardial infarction, which was treated with implantation of two stents, one in the right coronary artery and one in the circumflex artery. In 2013, the patient suffered another inferior myocardial infarction,

which was thrombolysed but without signs of reperfusion, therefore the patient underwent a coronary angiography which showed occlusion of the right coronary artery, therefore another stent was implanted in the right coronary artery. In 2015, the patient presented again to the hospital complaining of chest pain with a burning character. ECG at admission indicated pathological Q waves in the inferior leads, flat T waves in DI, DII, DIII and V6 (figure 1). Echocardiography at admission revealed an atheromatous aortic wall, first degree mitral regurgitation, first degree tricuspid regurgitation, ejection fraction of 48% and a septal and side wall hypokinesia. Blood counts and renal function were normal. AngioCT examination was performed for a better evaluation of the coronary bed and indicated the right coronary artery without significant stenosis and a permeable stent, without any sign of in-stent restenosis (figure 2). In figure 3 we can see the circumflex artery stent restenosis and the occlusion located proximal to the stent, revealed by Angio CT. Also, we can see calcified plaques in the anterior descending artery. The occlusion proximal to the stent and the stent restenosis can be viewed in detail in figure 4. The examination of the coronary arteries with coronarography confirmed the occlusion of the circumflex artery at its origin from the left main, proximal to the first stent, therefore a revascularization procedure was decided. At the first attempt to cross the occlusion with a BMW guide, a coronary artery dissection was produced caused by the rupture of the atherosclerotic plaque, which progressed

\* Correspondence to: Tiberiu Nyulas  
E-mail: tiberiu.nyulas@gmail.com

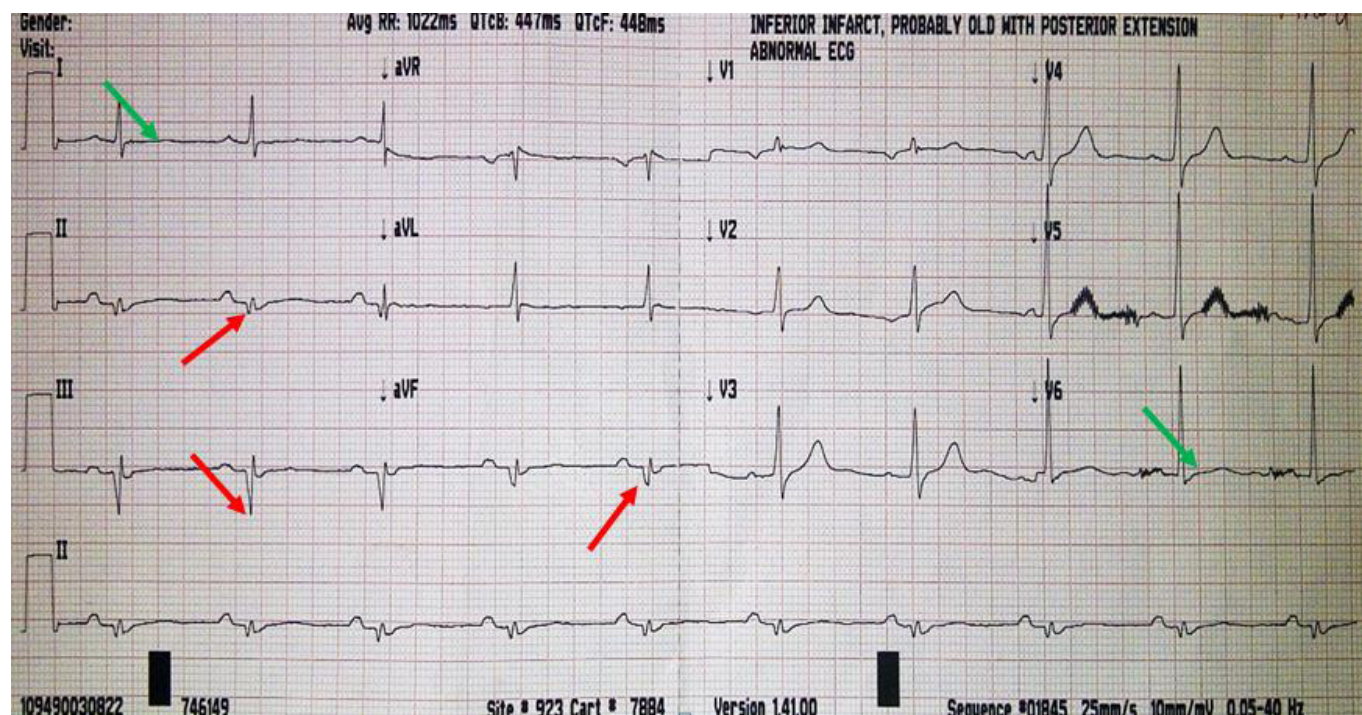


Fig. 1. ECG at admission showing pathological Q waves in the inferior leads, flat T waves in DI, DII, DIII and V6

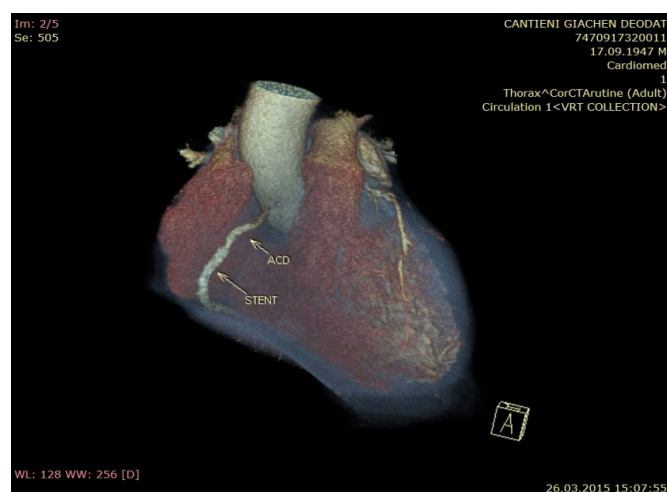


Fig. 2. Angio CT Multislice showing patent right coronary artery

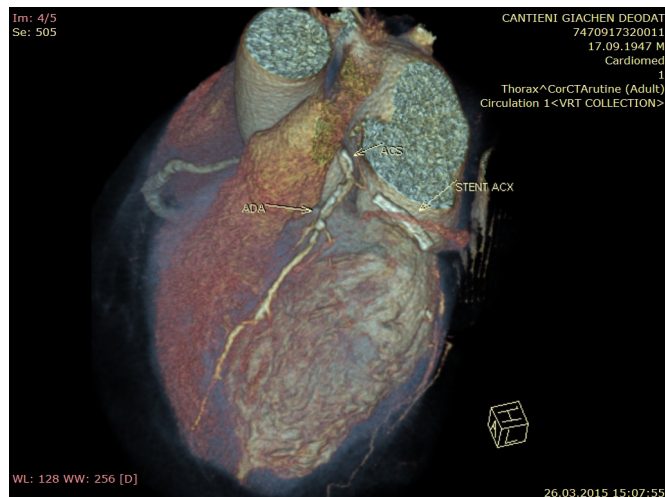


Fig. 3. Angio CT Multislice showing occlusion of the circumflex artery

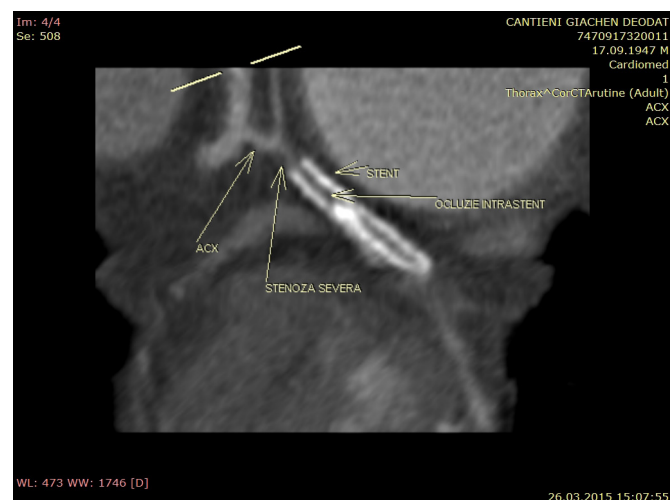


Fig. 4. Angio CT revealing occlusion of the coronary stent

rapidly retrograde to the left main (fig. 5), causing hemodynamic instability, with a significant drop in the blood pressure and signs of cardiogenic shock. The patient received urgent inotropic support and the rapid response of the interventional cardiologist was to implant a stent in the left coronary artery trunk (figure 6). Inotropic support (Dopamine 5 ug/kg/min) was maintained for 6 hours postintervention to maintain an optimal blood pressure. Subsequently, the control angiography revealed a stent well apposed to the coronary artery wall, resolving the dissection (Figure 7), and the patient was hemodynamically stable, without any angina.

## Discussions

Ischemic complications have been reported in approximately 4% of patients undergoing coronary angioplasty



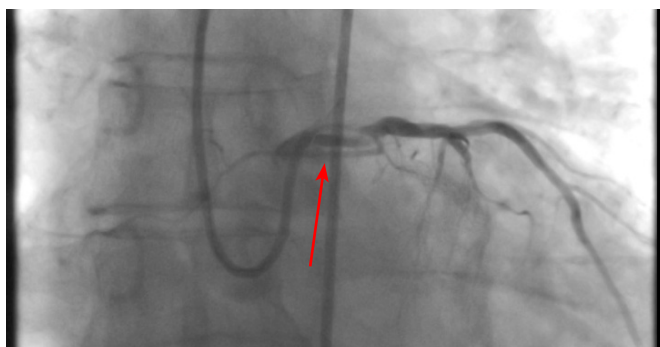


Fig. 5. Coronary angiography indicating a dissection localized proximal to the stent

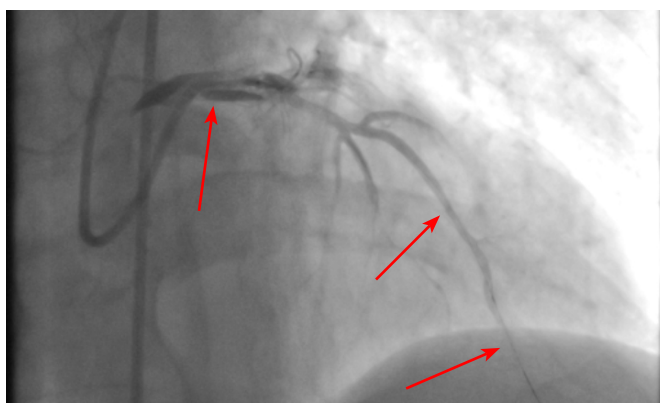


Fig. 6. Attempt to cross the lesion with a guidewire, causing coronary dissection transmitted retrogradely into the left main

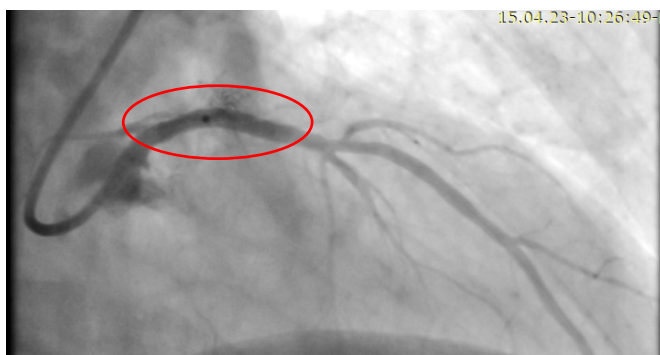


Fig. 7. Optimal post PTCA result after stent implantation

and in about 2% after leaving the catheterization laboratory [3]. Although spontaneous coronary artery dissection is considered to predominately affect young individuals, most previous studies have shown otherwise, with the higher prevalence in the 5th/6th decade of life [4]. Coronary angiography is the most widely used diagnostic technique for visualisation of the coronary arteries

[5]. Angiography, however, is unable to visualize the vessel wall and has a limited diagnostic accuracy. In this setting, novel tomographic techniques, such multislice computed tomography (MSCT), provide unique diagnostic insights [6] for a better preparation of the procedure. Despite the certain advantages provided by Angio CT examination and despite the proper preparation of the patient, in this case the patient presented a left coronary dissection resulting from the attempt to cross the circumflex artery occlusion with the BMW guide. As in other studies found in the medical literature [3,7], the operator urgently implanted a coronary stent, with very good angiographic results, which saved patient's life.

## Conclusions

Coronary artery dissection is a very serious complication that can occur during a complex revascularization procedure, requiring immediate intervention in order to save the patient's life.

## Acknowledgement

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## Conflict of interest

None to declare.

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