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Authors: Michał Balak, Wojciech Pawliszak, Marcin Walukiewicz, Aleksandra Balak,
Grzegorz Grzešek

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Posttraumatic acute myocardial infarction. Is angioplasty of an occluded artery always the best option? Always be ready for alternative scenarios

Short title: Posttraumatic acute myocardial infarction

Michał Balak¹, Wojciech Pawliszak², Marcin Walukiewicz¹, Aleksandra Balak¹, Grzegorz Grzešek¹

¹Department of Cardiology and Clinical Pharmacology, Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Poland

²Department of Cardiac Surgery, Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland

Correspondence to:

Marcin Walukiewicz, MD,
Department of Cardiology and Clinical Pharmacology,
Nicolaus Copernicus University in Toruń,
Ludwik Rydygier Collegium Medicum in Bydgoszcz,
Jagiellońska 13/15, 85–067 Bydgoszcz, Poland
phone: +48 52 365-56-53
e-mail: waluk@op.pl

Blunt chest trauma is one of the possible ways for the presentation of myocardial infarction [1]. Its occurrence due to a motor vehicle accident is quite rare. However, it still comes with its own set of complications such as increased mortality rate compared to other patients [2]. In this case, a patient subject to a motor vehicle accident experienced an onset of myocardial infarction with an interesting electrocardiography and coronary angiography presentation.

A 54-year-old man was admitted to the hospital after being run over by a car. During the diagnosis at the emergency room, among others, the fracture of ribs 1 to 10 on the left-hand side was found. Electrocardiography revealed ST elevation in leads II, III, and aVF suggesting a case of ST-elevation myocardial infarction of the inferior wall (**Figure 1A–B**), and the patient was qualified for an emergency coronarography. At that time the patient was in a hemodynamically stable condition with a blood pressure of 130/80 mm Hg. An

echocardiography performed before the procedure showed no signs of tamponade and the heart was contracting properly. Angiography performed via a transradial approach showed an occlusion of the posterolateral branch of the right coronary artery (Figure 1C). Upon balloon dilatation of the right coronary artery, a contrast flow into the pericardium and the pleura could be observed with a drop in blood pressure to 60 mm Hg (Figure 1D). After securing the right coronary artery with a balloon (Figure 1E) and starting a norepinephrine infusion, the blood pressure increased to 100/60 mm Hg and the patient was urgently transported to a nearby hospital's cardiac surgery department with the goal of further treatment. For the time of the transportation, the balloon was left filled up, which prevented a hemorrhage from the coronary artery. At that time no tamponade was found in ultrasound.

Upon sternotomy, the opening of the pericardium revealed the presence of fresh blood. There was a cardiac contusion of the anterior and inferoposterior walls as well as the apex. Out of the torn right posterolateral branch, there was the previously inserted catheter with the balloon sticking out. After its removal, there was intense bleeding, which was dealt with by applying a vascular clip. TachoSil, which is an equine collagen sponge coated with fibrinogen and thrombin, was applied to the heart surface affected by the contusion. The left pleura was filled with blood and clots. Multiple broken ribs, which were cutting into the surface of the lungs creating wounds were stitched together. Afterward, the patient was transferred to an intensive care unit as a means of postoperative care. Finally, the patient was discharged from the hospital on the 48th day since the accident in good condition.

The described case shows how difficult situations sometimes must be dealt with in a catheterization laboratory while performing procedures on patients with acute myocardial infarction. It must also be noted that not every occluded coronary artery might require immediate unblocking due to possible other than atherosclerotic mechanisms of myocardial infarction suggested by the patient's underlying condition.

Article information

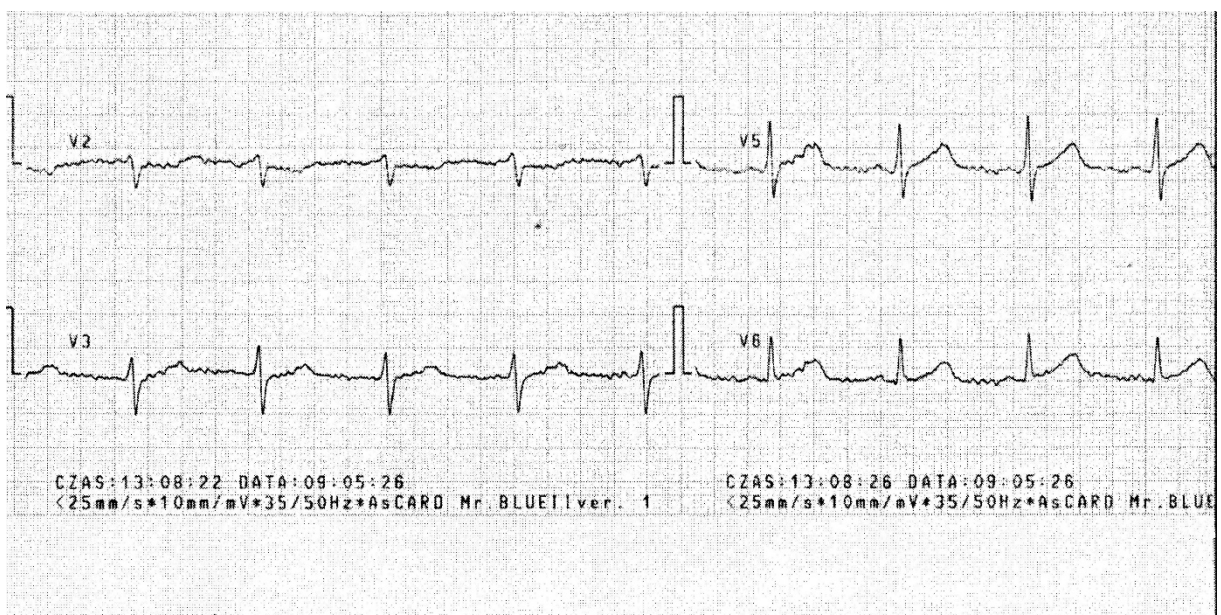
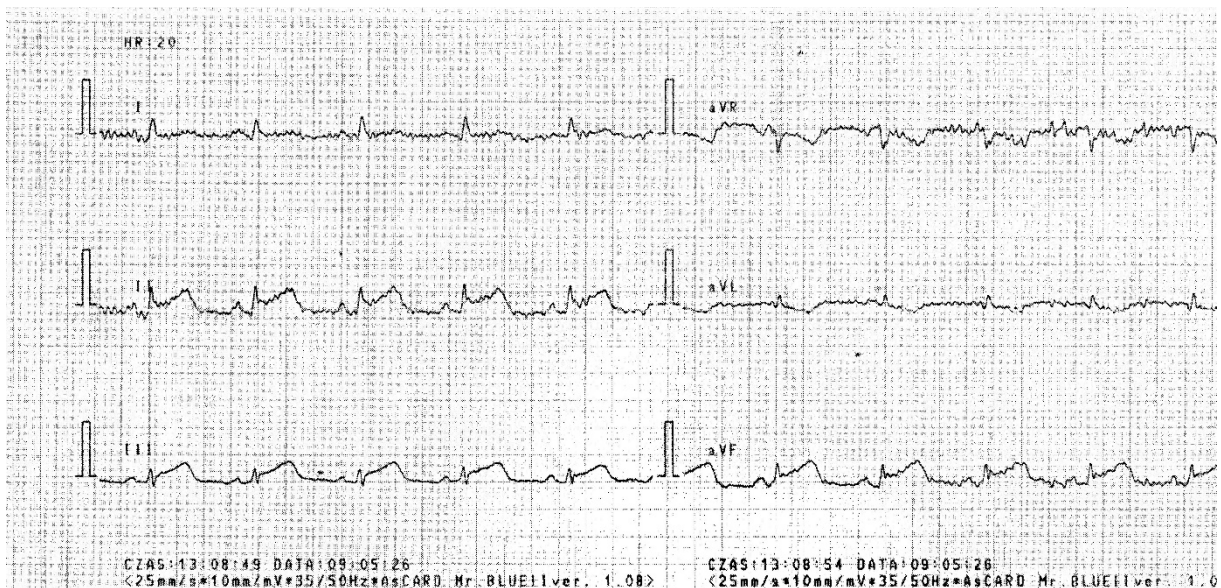
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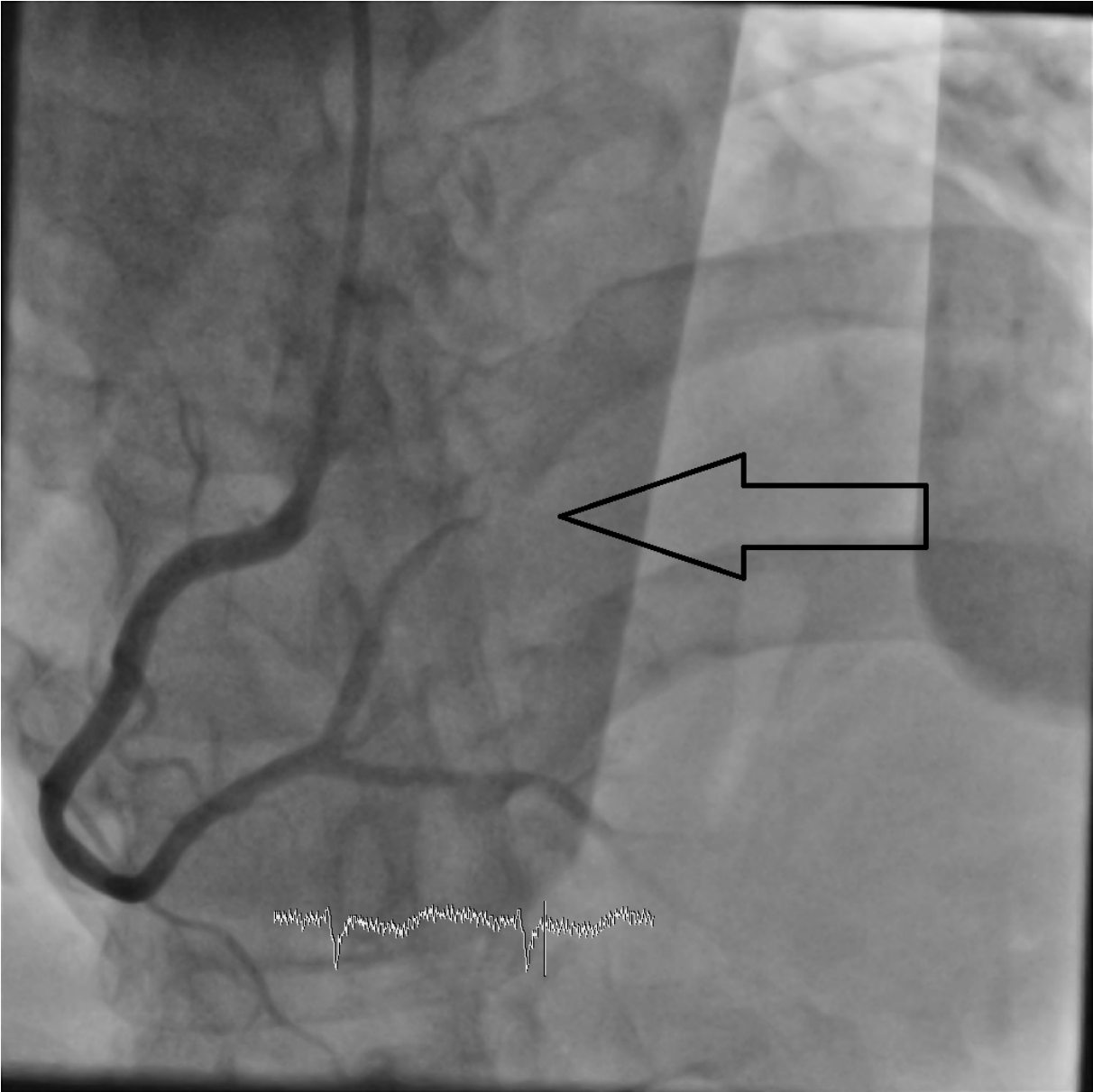
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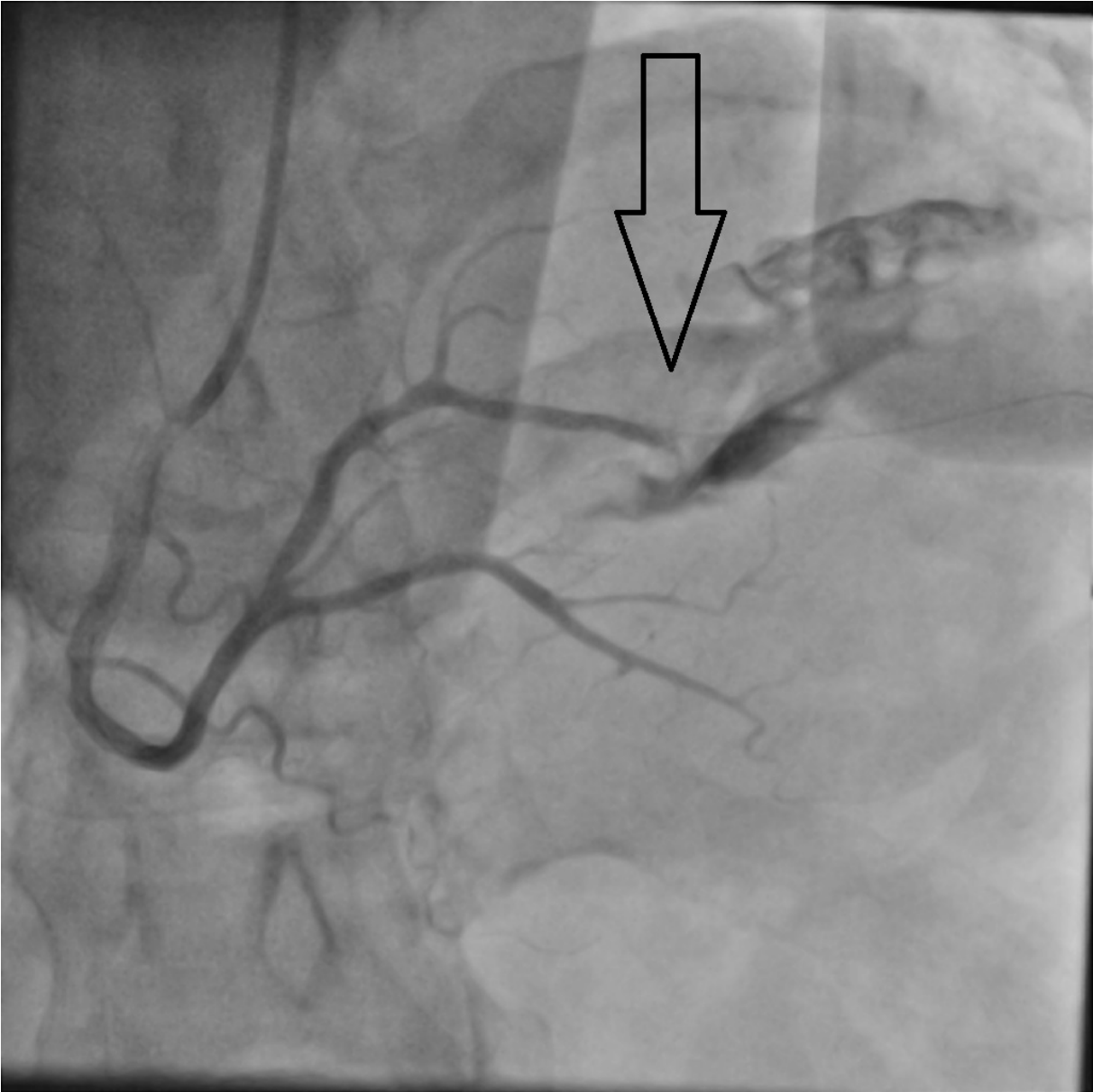
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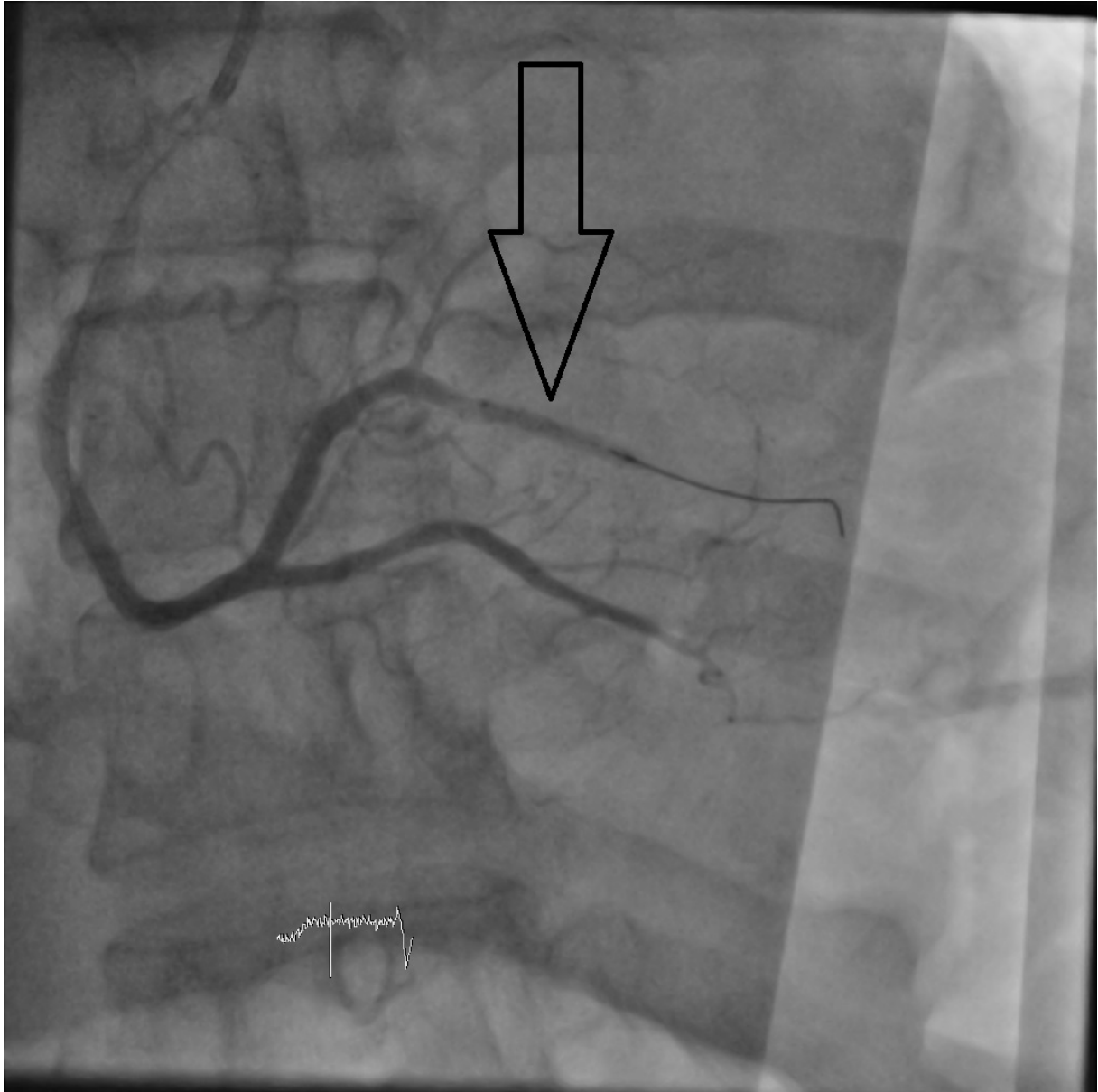


Figure 1. A–B. Electrocardiography with visible changes suggesting ST-elevation myocardial infarction. **C.** Occluded distal part of the right coronary artery. **D.** Image after balloon angioplasty. **E.** Inflated balloon in the right coronary artery