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Coronary cannulation challenge in a patient with tetralogy of fallot history and myocardial infarction

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A 33-year-old heavy smoker male was admitted for inferior ST-elevation myocardial infarction, cardiogenic shock, and complete atrioventricular block. The patient had a history of tetralogy of Fallot (TOF) surgery, but surgical data were not available. We conducted an emergent primary percutaneous coronary intervention (PCI). We succeeded to cannulate the left main using an Amplatz Left 1.0 guiding catheter, after the failure of many attempts using JL 3.5 and EBU catheters. The right coronary artery (RCA) was also cannulated using the same guiding catheter; the JR 3.5 catheter was not useful. The RCA had an anterior position, close to the midline. We also diagnosed an

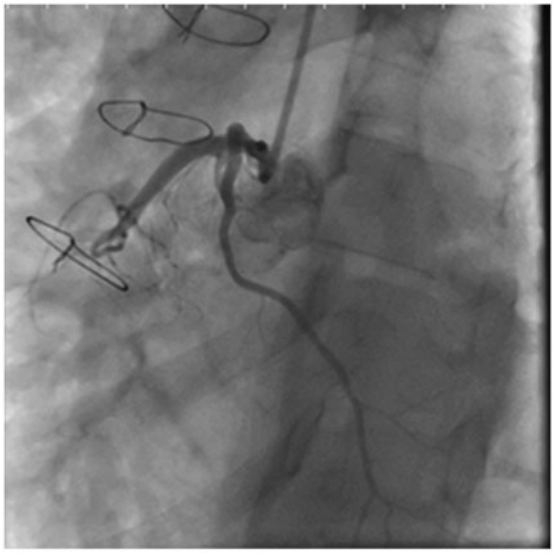

Figure 1 Coronary angiography: visualization of the right coronary artery which is taking off from the anterior wall of the aorta the intra-myocardial course of the accessory left anterior descending artery which arises from the right coronary artery.

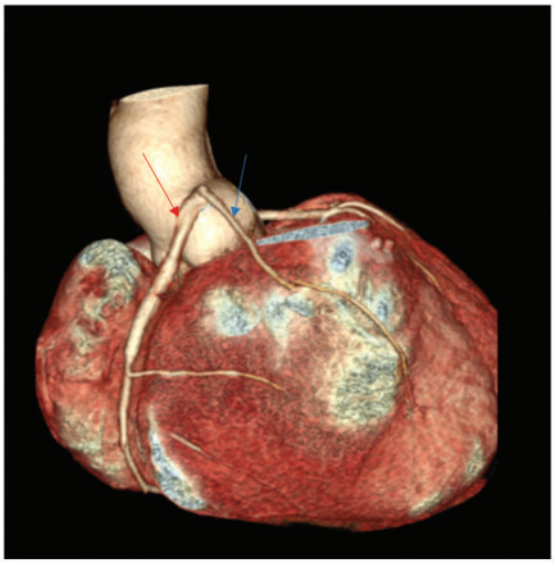

Figure 2 Computed tomography scan: showing the origin of the right coronary artery (red arrow) from the anterior wall and the left main (black arrow) from the posterior wall because a counter clockwise rotation of the aorta. The accessory left anterior descending artery (blue arrow) take off from the proximal right coronary artery.

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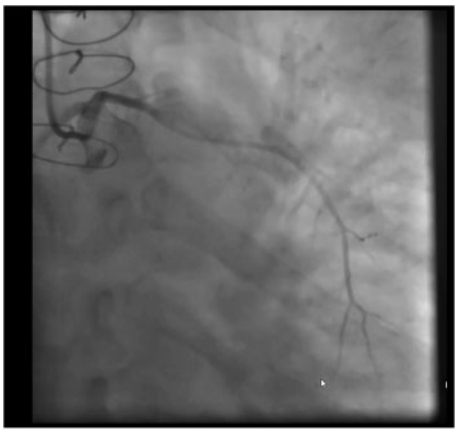

Video 1 Coronary angiography.

accessory left anterior descending artery (LAD) originating from the RCA (*Figure 1* and *Video 1*).

The PCI was successfully performed using a drug eluting stent (DES), with a thrombolysis in myocardial infarction III final flow. The computed tomography scan performed 2 days later, showed an anterior position of the RCA and a posterior position of the left main stem (LM) as well as an accessory LAD arising from the RCA with an intra-myocardial course (*Figure 2*).

Coronary artery anomalies are not exceptional in patients with TOF.[1] The common coronary abnormalities include origin of a canal branch or LAD from the RCA or right sinus and single coronary from the right sinus.[2] In fact, in patients with TOF, there is a counter-clockwise rotation of the aorta (when viewed from above), therefore RCA will be found in an anterior position and LM in a posterior position.

The interventionalist should think about this issue when performing coronary angiography in patients with TOF. Appropriate guiding catheter selection is of an important concern. Sakar *et al.* reported in a series of anomalous RCA originating from the left Valsalva sinus, that 'the Left Amplatz is the most appropriate guiding catheter for coronaries taking off along the midline'.[3] The management of this patient was not easy given the cardiogenic shock and electric disorder.

Supplementary material

Supplementary material is available at *European Heart Journal - Case Reports* online.

Slide sets: A fully edited slide set detailing this case and suitable for local presentation is available online as Supplementary data.

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

Conflict of interest: none declared.

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