Myocardial infarction in monozygotic twins

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DESCRIPTION

A 46-year-old man presented to the hospital with a brutal chest oppression with mandibular and left arm discomfort. He was a current smoker (28 pack-year) and his father had experienced a myocardial infarction. He was not receiving any medical treatment. The first ECG showed an inferior ST-elevation myocardial infarction (STEMI). Angiography revealed a mid-right coronary artery occluded by a thrombus ([figure 1A](#)), treated by angioplasty. He had an uneventful evolution after angioplasty in the coronary care unit and a normal left ventricular ejection fraction. His body mass index (BMI) was 26.6 kg/m², his low-density lipoprotein cholesterol (LDL-C) level was 121 mg/dL and triglyceride level was 233 mg/dL. No other risk factors were identified.

One year and 4 months later, his monozygotic twin brother was admitted to the hospital due to a sudden onset of chest pain and dyspnea. He was a former smoker (25 pack-year) taking aspirin and atorvastatin 10 mg since his brother's infarction. The prehospital ECG showed an inferior STEMI. Coronary angiography disclosed mid-right coronary subocclusion and images suggestive of intracoronary thrombus ([figure 1B](#)). Angioplasty was performed with a drug-eluting stent implantation in the mid-right coronary artery, followed by resolution of electrocardiographic signs and symptoms. His BMI was 25.2 kg/m², LDL-C level was 51 mg/dL and triglyceride level was 260 mg/

Learning points

- ▶ There is a high concordance in coronary anatomy between monozygotic twins, between evident genetic factors and close environmental data.
- ▶ It reinforces the importance of primary prevention and thorough screening in twins' siblings, when one is suspected of coronary disease.

dL under atorvastatin. Lipoprotein (a) level was 124 mg/dL. No other risk factors were identified.

Both twin patients exhibited a very similar coronary artery disease, at the same age, with a very close coronary anatomy and an acute unstable coronary lesion in the mid-right coronary artery. This highlights a high concordance in coronary anatomy between monozygotic twins, between evident genetic factors and close environmental data.^{1,2}

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Figure 1 Coronary angiogram of inferior myocardial infarction showing mid-right coronary artery occlusion for the first twin (A) and a subocclusion at the same site for the second twin (B).

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