

Multiple coronary artery fistulae presenting with ST-elevation myocardial infarction

A 33-year-old male patient without any major risk factors for coronary artery disease presented to our hospital with typical chest pain that started two hours ago. Electrocardiography showed sinus rhythm and ST elevation in inferior leads (II, III, aVF). The patient was immediately taken to the cardiac catheterization laboratory to perform percutaneous coronary intervention. Coronary angiography revealed fistulae originating from the left main coronary artery (LMCA) and circumflex artery (Cx) (Fig. 1a, Video 1). Proximal segments of the left anterior descending (LAD) artery and Cx were ectatic, and no critical stenosis was noted. The right coronary artery (RCA) was the culprit vessel, and the left Amplatz guiding catheter was preferred because of the unusual origin of the right coronary ostium (Fig. 1b). After an ectatic proximal segment, the middle portion was totally occluded with minimal antegrade flow. After the balloon angioplasty, distal TIMI-3 flow was seen. Fistula formation, which was not evident earlier, was noted to be originating from the middle portion of RCA (Fig. 1c, Video 2). The procedure was terminated because chest pain and ST segment elevations resolved. Intravenous glycoprotein 2b/3a inhibitor was given. Bedside echocardiography showed neither hypokinesia of the RCA region nor other mechanical complications of STEMI. Three days after the index event, 64-slice multidetector computed tomography angiography was performed to determine the exact course of the fistulae. Computed images revealed multiple, dilated, and tortuous fistulae that arose from the proximal portion of LMCA and the proximal and distal portions of Cx and that drained into the superior vena cava by forming a network at the inferoposterior site of the right pulmonary artery (Fig. 2). Fistulae that originated from the middle portion of RCA drained into SVC at the aortic root level. Surgery was recommended to the patient because of multiple fistulae, extreme fistula tortuosity, significant left-to-right shunting (Qp/Qs: 1.9), LMCA involvement, and incomplete revascularization of RCA. However, the patient refused the surgery and requested to be managed conservatively.

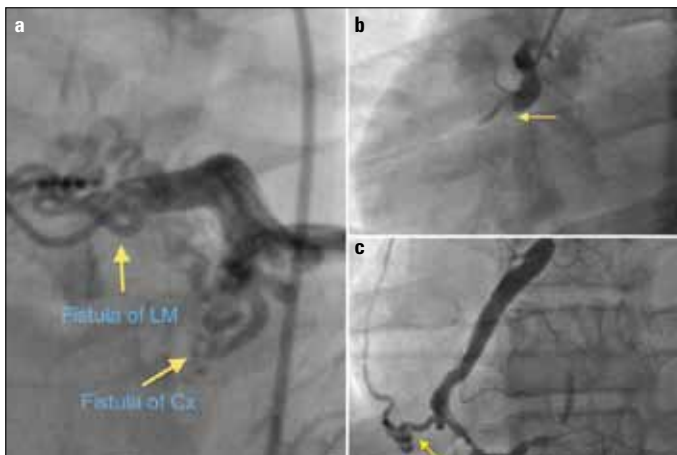


Figure 1. a-c. Coronary angiography views (a) fistulae of LM and Cx arteries (b) totally occluded right coronary artery with absent flow (c) coronary angiographic view of the fistula of the right coronary artery after balloon angioplasty

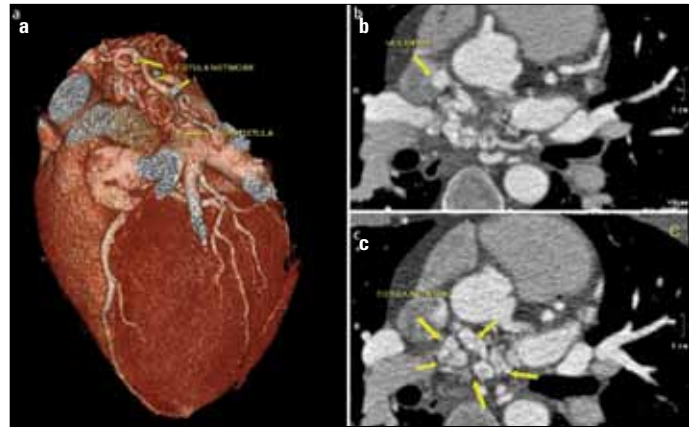


Figure 2. a-c. Coronary multidetector computed tomography views (a) 3-D reconstruction of fistula network (b) fistulae drained into the superior vena cava (c) fistula network

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Video 1. Coronary angiographic view of the fistulae of LM and Cx arteries

Video 2. Coronary angiographic view of the fistula of the right coronary artery after balloon angioplasty

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