

IMAGES IN CARDIOLOGY

Pulmonary artery fistulas associated with coronary lesions

Alexandru Mihailovici¹, Roxana Enache², Emanuel Stoica², Marin Postu²

The coronary arterial fistula is a rare abnormality that links one or more of the coronary arteries, and a cardiac chamber or a great vessel. It is also known as coronary arteriovenous malformation¹. The coronary artery fistula's etiology is not very well known, but most of the fistulas have a congenital origin. Usually they are spotted by accident, after a cardiac surgery (such as valve replacement), angiography, coronary artery bypass grafting and after repeated myocardial biopsies in cardiac transplantation^{2,3}. Clinically, most of the fistulas are asymptomatic in the first two decades, especially when they are small. Indeed, a few of them may close spontaneously. If not, the frequency of both symptoms and complications increases⁴. The symptoms frequency is increased in older patients, presenting dyspnea or angina of effort and occasionally arrhythmias. Congestive cardiac failure can appear on

patients with large left-to-right shunts especially during infancy and occasionally in the neonatal period⁵. Most of the complications are: 'steal' from the adjacent myocardium causing myocardial ischemia, thrombosis and embolism, cardiac failure, rupture of the fistula, endarteritis and arrhythmias (atrial fibrillation)^{1,6-8}. One of the rare complications in the coronary arterial fistula is thrombosis that may cause an acute myocardial infarction, also atrial and ventricular arrhythmias⁹. Some cases of hemopericardium due to spontaneous rupture of the aneurysmal fistula have been reported¹⁰. Another complication is angina that may be due to coronary artery steal¹¹.

CASE REPORT

We will present the case of a 66 year old patient, from the country side, with multiple cardiovascular



Figure 1. Left main without lesions, left descending artery (LAD) without lesions, 70% stenosis of the diagonal artery (DG) II, circumflex artery (CX) without lesions.

¹ Department of Cardiology, Emergency Country Hospital Craiova, Romania

² "Prof. Dr. C.C. Iliescu" Emergency Institute for Cardiovascular Diseases, Bucharest, Romania

✦ Contact address:

Alexandru Radu Mihailovici, MD
Department of Cardiology, Emergency COunty Hospital, Craiova, Romania
E-mail: drmihailovici@yahoo.com
Phone: 0729909324

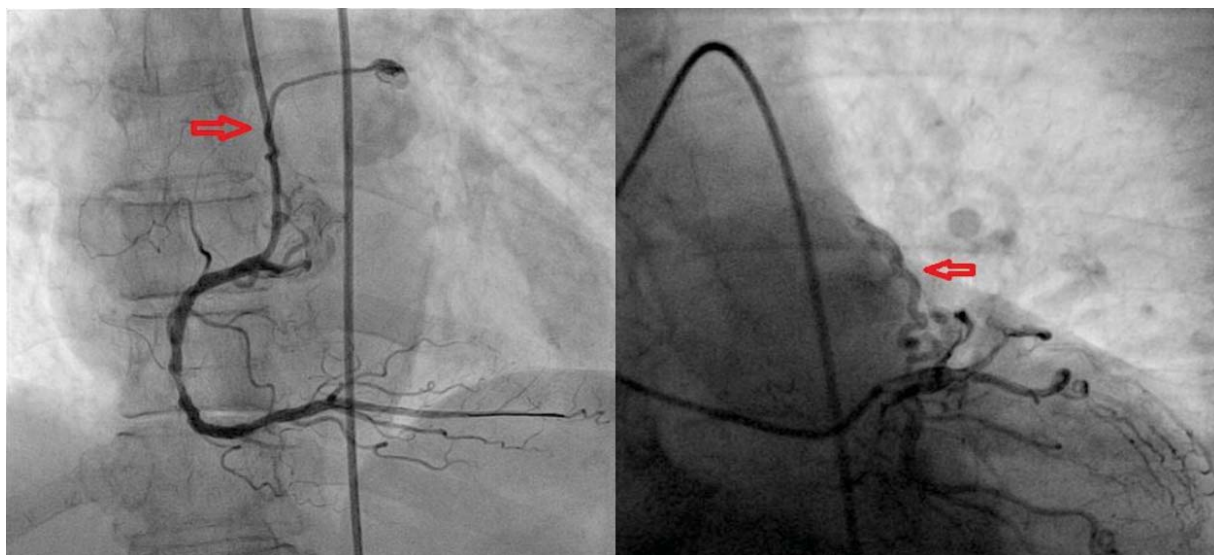


Figure 2. Right coronary artery- pulmonary artery fistula. Descending artery-pulmonary artery fistula. The pulmonary artery accumulates contrast agent from branches emerging from the descending artery and right coronary artery.



Figure 3. 40% atherosclerotic plaque in the 2nd segment of right coronary artery, subocclusion in the 3rd segment followed by 40% atherosclerotic plaque. The presence of a fistula between the proximal segment of right artery coronary and pulmonary artery can be observed.

risk factors (hypertension, dyslipidemia, obesity), with cirrhosis for 9 years, which was transferred through Ro-STEMI program to our unit for chest pain, that appeared 4 hours before the presentation, accompanied by orthopnea.

On admission the patient is in a good clinical condition, aware, oriented to time and space, bilateral vesicular murmur (VM), bilateral basal crepitation, Sa O₂ = 96%, blood pressure (BP) 140/80 mmHg, heart rate (HR) 68/min, regular heart sounds without murmurs heart, abdomen distended, hepatomegaly. The ECG reveals a basic sinus rhythm being about a heart rate of 100 bpm, QRS axis at 45°, is observed ST segment elevation in the anterior territory (from V1 to V6) of

5mm, QS from V1 to V4, Q in V5, high P wave in DII. Blood analyses show myocardial necrosis enzymes increased, NTproBNP 6998 pg/ml, Troponin I 4.57 ng/ml. The Echocardiography finds diastolic LV diameter 42 mm, systolic LV diameter 30 mm, interventricular septum 11mm, posterior wall 10 mm, LA 36 mm, RV 27 mm, Ao ring 20 mm, Ao asc 32 mm, RA 39 mm, LVEF 50%, inferior vena cava 16 mm with inspiratory collapse. Mild mitral regurgitation, inferior wall akinesia, free pericardium. Pulmonary artery with normal dimensions, no pulmonary hypertension.

Coronary angiography shows left main without lesions, left anterior descending artery (LAD) without lesion, 70% stenosis of the diagonal artery (DG) II,

circumflex artery (CX) without lesions. Also, the angiography has revealed the existence of two fistula (between the proximal segment of right artery coronary and pulmonary artery, left anterior artery descending and pulmonary artery) without hemodynamic significance (Figure 1 and 2).

Contrast injection in the right coronary artery shows 40% atherosclerotic plaque in the 2nd segment of right coronary artery, subocclusion in the 3rd segment followed by 40% atherosclerotic plaque (Figure 3).

As a result, an angioplasty with drug eluting stent was performed in a patient with inferior-posterior-lateral STEMI after 4 hours before the presentation. After 2 days the patient was reevaluated by echocardiography, cardiac chambers were within normal limits, aorta and pulmonary artery with normal dimensions, no pulmonary hypertension.

In conclusion, pulmonary arteriovenous fistulae are rare, especially those with a common outflow. Establishing a diagnosis and understanding their haemodynamics are essential, otherwise they would only be a simple scientific curiosity.

Conflict of interests: none declared.

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