



Coronary Cameral Fistula: Literature Review, Diagnosis and Management, about a Case

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Authors' contributions

This work was carried out in collaboration among all authors. Author SH is the corresponding author, did the data collection and wrote the paper. Authors YH did data curation of the study. Authors FA and MH did formal analysis. Authors SA, EGB and LA supervised the study. Author RH did data validation. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

A coronary fistula is defined as a direct connection between a coronary artery and a heart chamber, great vessel, or other vascular structure that "bypasses" the myocardial capillary bed. This is a rare pathology that is usually not discovered until later in life, and exceptionally not during childhood. We report the case of a young patient who was hospitalized for chest pain and shortness of breath and who was found to have a coronary fistula on angiography.

A 66-year-old patient. Hypertension on dual therapy for 16 years and diabetes on OAD (Oral Antidiabetic) for 4 years. He was hospitalized with typical angina pectoris and dyspnea, and the

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stress test was positive. Laboratory examination revealed a good general condition with NYHA stage 3 dyspneic angina pectoris extending to the upper extremities and no evidence of heart failure. Looking at the balance, we see a slight increase in troponin. ECG returns to regular sinus rhythm, with electrical LVH (left ventricular hypertrophy) and ambient negative waves, no rhythm or conduction abnormalities. Transthoracic echocardiography (TTE) reverses hypertensive heart disease with good global and partial contractility without significant valvular disease associated with systolic pulmonary arterial pressure (SPAP) at 35 mmHg. Coronary angiography is performed and shows evidence of minor involvement of the central CX artery and a coronary camera fistula from the first diagonal artery draining into the left ventricle.

Management was about optimizing medical care. The patient received an appointment and was declared discharged.

Coronary camera fistulae are rare, found in approximately 0.3% of coronary angiographic studies performed. Most are congenital and may occur primarily due to trauma, erosive infection of the vessel wall, or iatrogenicity during transluminal coronary angioplasty, myocardial biopsy, or valve replacement. In many cases, simple but complex forms can be described. The gold standard for confirming the diagnosis remains coronary angiography, which highlights both the affected arteries and drainage sites. Cardiac scanners occupy an increasingly important position, especially as they provide morphologically accurate information. Surgical or percutaneous treatment of the fistula with a coil is recommended in symptomatic adult patients, especially those with significant or complicated right-to-left shunts. The authors suggest treatment with β -blockers when multiple sinusoidal fistulas associated with ventricular wall hypertrophy are present. Close monitoring is recommended for asymptomatic small fistula.

Corneal fistula is a rare congenital or acquired condition that is mostly asymptomatic and discovered in adulthood. Coronary angiography and heart scan can be used to confirm the diagnosis. Treatment is usually surgical or endovascular. However, in some cases, drug treatment with beta-blockers may help.

Keywords: *Fistulae; cameral chord; diagonal artery; left ventricle.*

ABBREVIATIONS

<i>OAD</i>	= Oral Antidiabetic
<i>BPM</i>	= Beat per minute
<i>GFR</i>	= Glomerular filtration rate
<i>ECG</i>	= Electrocardiogram
<i>TTE</i>	= Transthoracic echocardiography
<i>TOE</i>	= Transesophageal echocardiography
<i>HR</i>	= Heart rate
<i>LVH</i>	= Left ventricular hypertrophy
<i>LMWH</i>	= Low molecular weight heparin
<i>HG</i>	= Hemoglobin
<i>ACE</i>	= ACE inhibitors
<i>AP</i>	= arterial pressure
<i>SPAP</i>	= systolic pulmonary arterial pressure

1. INTRODUCTION

A coronary fistula is defined as a direct connection between a coronary artery and a heart chamber, great vessel, or other vascular structure that "bypasses" the myocardial capillary bed. Most are congenital, but may be acquired in certain circumstances [1,2]. Incidence varies between series, but is estimated to be 0.002% in the general population. This is a rare pathology,

usually not discovered until later in life, and exceptionally not during childhood [3,4].

We report the case of a young patient who was hospitalized for chest pain and shortness of breath and who was found to have a coronary fistula on angiography.

2. OBSERVATION

This is the case of a 66-year-old patient who was followed for 16 years with double therapy for hypertension and 4 years for diabetes with ADO and exercise test-positive stress angina and was hospitalized with typical angina and dyspnea. Laboratory examination revealed a good general condition with NYHA stage 3 dyspneic angina pectoris extending to the upper extremities and no evidence of heart failure. The rest of the physical examination was unremarkable, AP = 140/70 mmHg, FC 69 BPM (Beat Per Minute). The electrocardiogram (ECG) returned to regular sinus rhythm, with electrical LVH and ambient negative waves, and no rhythm or conduction abnormalities (Fig. 1).

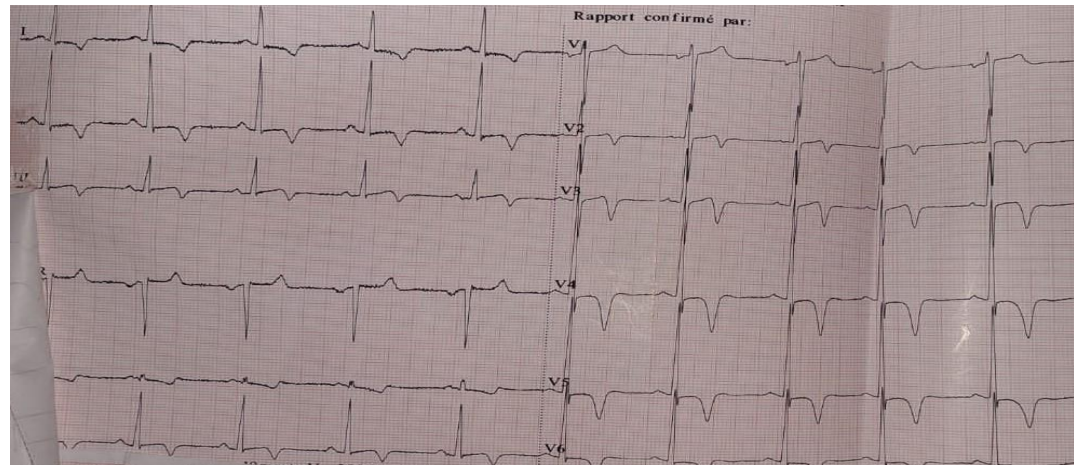


Fig. 1. ECG image with electric HVG + negative T-waves circumferentially

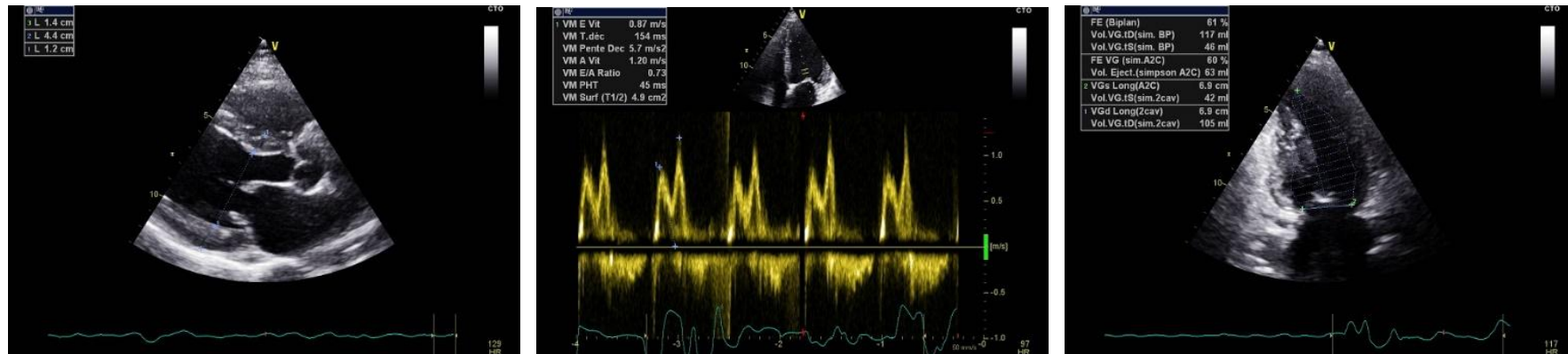


Fig. 2. Transthoracic Echocardiography images showing hypertensive heart disease with good ventricular function



Fig. 3. Coronary angiography images showing a dominant right network free of injury, a fistula of the first diagonal and a non-significant lesion of the middle circumflex

TTE reverses hypertensive heart disease with good global and partial contractility without significant valvular disease associated with PAPS at 35 mmHg (Fig. 2).

Haemocytometry showed slightly positive US troponin at 18, HG = 12 g/dl, creatinine = 9.9 mg/l, GFR (Glomerular Filtration Rate) 64 ml/min. Initial treatment started with aspirin 75 mg/24 hours, statin 40 mg/24 hours, ACE inhibitors and calcium channel blockers, propranolol 50 mg/24 hours, low molecular weight heparin (LMWH) 0.8 ml x 2/24 hours.

Coronary angiography reveals insignificant involvement of the middle circumflex artery (approximately 30%) and a coronary camera fistula from the first diagonal artery draining into the left ventricle (Fig. 3).

The patient was discharged for treatment. Optimize doses of aspirin, statins, ACE inhibitors, calcium channel blockers, and beta-blockers and antianginals as needed. She was seen 1 month after discharge and she was seen 3 months later, reporting marked clinical improvement (stage II at return visit) with the disappearance of her chest pain and less shortness of breath.

3. DISCUSSION

A coronary camera fistula is described as an abnormal connection between the coronary arteries and the heart chambers or vessels connected to it. It is rare and found in approximately 0.3% of coronary angiography examinations performed [5,6]. Most are congenital and may occur primarily due to trauma, erosive infection of the vessel wall, or iatrogenicity during transluminal coronary angioplasty, myocardial biopsy, or valve replacement. In many cases, simple but complex forms can be described. Unlike our case, the fistula drains primarily into the right cavity [7]. Drains into the left cavity. It can occur unilaterally, bilaterally, or multiple times, most commonly from the right coronary artery (40% to 60%), but more rarely from the anterior ventricular artery (30% to 60%). %, and in exceptional cases may arise from the circumflex arteries. , the common trunk is not reserved [8]. If the low-pressure diet is working, most fistulas will drain into the venous circulation. Right ventricular drainage is most commonly reported in approximately 41% of cases, regardless of the artery involved [9]. This is in contrast to the

present case where drainage likely occurs in the left ventricle.

Symptoms depend primarily on hemodynamic effects and occur most frequently in adults, but exceptionally in children. The majority of patients are asymptomatic, but signs such as angina pectoris and shortness of breath, most commonly suggestive of coronary syndrome, may be telltale signs, as was the case in our patient. The most obvious mechanism for the development of angina pectoris is ischemia secondary to coronary flight. Especially with large shunts, other complications such as pulmonary arterial hypertension, heart failure, aneurysm dilatation, and arrhythmias can occur [10].

The diagnostic approach most commonly leads to the creation of an ECG, which shows signs of congestion, and his ETE/ETO, which may show coronary artery dilatation or Doppler flow disturbances. The gold standard for confirming the diagnosis remains coronary angiography, which highlights both the affected arteries and drainage sites. Cardiac scanners occupy an increasingly important position, especially as they provide morphologically accurate information.

Spontaneous fistula closure is very rarely observed and the mechanism is poorly understood. Prognosis clearly depends on complications.

Surgical or percutaneous treatment of the fistula with a coil is recommended for symptomatic adult patients, especially those with significant or complicated right-to-left shunts. Endovascular techniques such as embolization with removable balloons or metal coils, or occlusion with Amplats occluders and plugs are rapidly gaining in popularity, greatly reducing the need for surgical intervention doing. These endovascular techniques are rapidly successful, with reported success rates as high as 95% in the literature. The main goal of treatment is to treat fistulas in the distal portion of healthy myocardium to prevent blockage of the branches feeding it [11]. Presence of large shunts or high-flow fistulas, multiple liaisons, tortuous sides of the fistula canal, presence of multiple ends, or presence of an aneurysm are indications for surgery. The authors suggest treatment with β -blockers when multiple sinusoidal fistulas associated with ventricular wall enlargement are present [12]. Close monitoring is recommended for asymptomatic small fistulae. In our patient, we

opted for optimization of beta-blocker therapy and waiver of surgical or endovascular treatment with regular clinical follow-up and ultrasonography.

4. CONCLUSION

Corneal camera fistula is a rare congenital or acquired medical condition that is mostly asymptomatic and discovered in adulthood. Coronary angiography and cardiac CT can be used to confirm the diagnosis. Treatment is usually surgical or endovascular. However, in some cases, drug treatment with beta-blockers may help.

CONSENT

Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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