

# Coronary cameral fistulae symptomatic with unstable angina

Przetoka wieńcowa uchodząca do lewej komory z objawami dławicy piersiowej

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## Abstract

Coronary arterial fistula is a rare defect characterized by a connection between one or more of the coronary arteries and a cardiac chamber or great vessel. Complications include 'steal' from the adjacent myocardium, thrombosis and embolism, cardiac failure, atrial fibrillation, rupture, endocarditis/endarteritis and arrhythmias.

Here we report the case of a 73-year-old female that was admitted for unstable angina. Coronary angiography revealed the presence of multiple large coronary-cameral fistula. CT scan confirmed the presence of ectasis of the left main artery, associated with coronary-cameral fistulae between left ventricle and ramus intermedius artery and the circumflex artery.

Key words: coronary artery fistula, angina, coronary angiograph, coronary artery disease

Folia Cardiologica 2017; 12, 3: 274–276

## Introduction

A coronary artery fistula involves a sizable communication between a coronary artery, bypassing the myocardial capillary bed and entering either a chamber of the heart (coronary-cameral fistula). They are present in 0.002% of the general population and are visualized in nearly 0.25% of the patients undergoing cardiac catheterization [1].

Often asymptomatic, it may be revealed by a complication as myocardial ischemia, myocardial infarction, congestive heart failure, or sudden death [2].

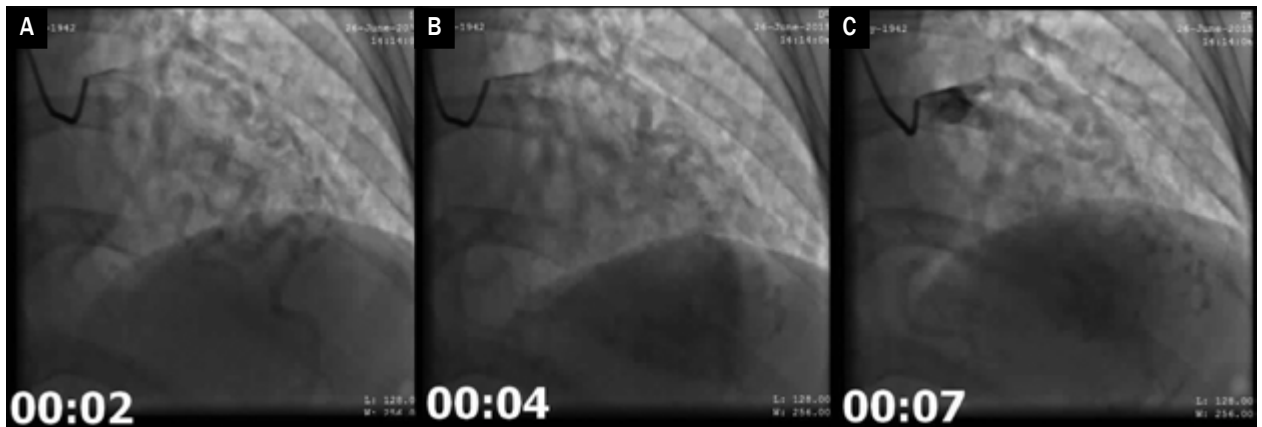
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## Case report

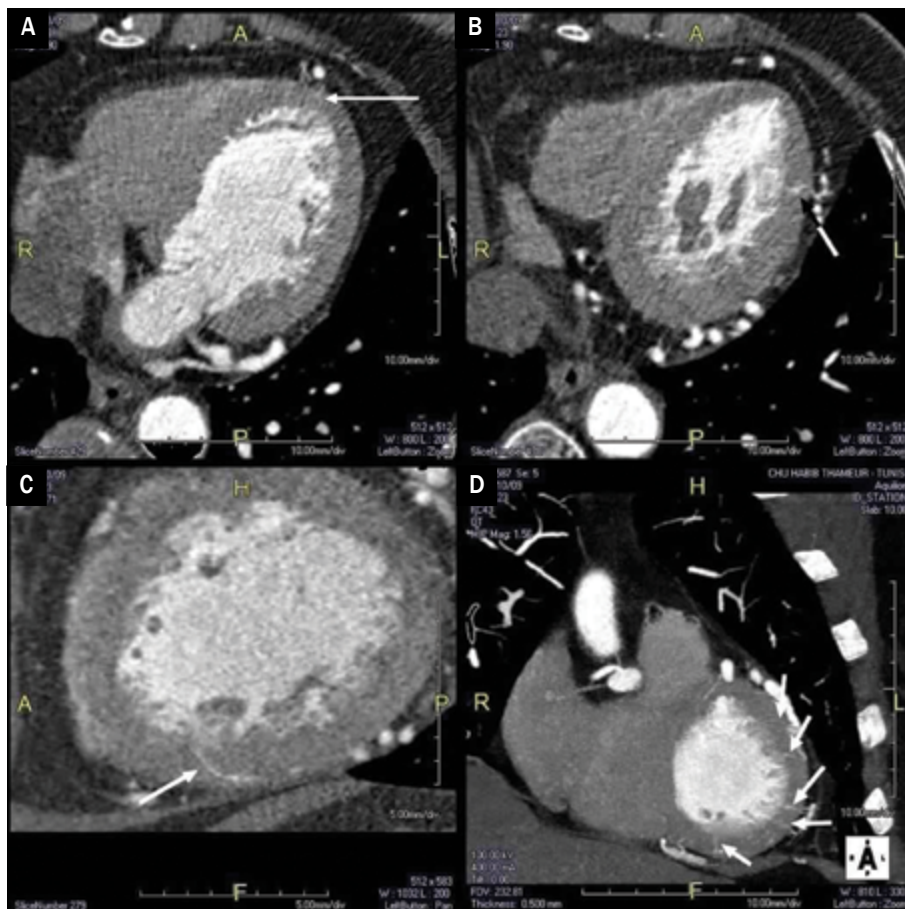
A 73-year-old female with a long history of hypertension, presented to the emergency room complaining of 3 days' history of typical chest discomfort on moderate exertion, which improved after the rest. Physical examination was unremarkable. Electrocardiography showed a normal sinus rhythm with negative T waves in lateral leads.

Trans-thoracic echocardiography revealed hypokinesia of the basal, mid segment of the lateral wall, but the overall systolic function of the left ventricle is preserved (ejection fraction = 60%).

Cardiac catheterization revealed that the left coronary artery was dominant with a coronary circulation free from significant obstructive atherosclerotic lesions. Multiple large fistula were identified between left coronary artery and left chambers, with a contrast in the left ventricle (Figure 1). The right coronary artery was not significantly diseased.



**Figure 1A–C.** Coronary angiography showing contrast in left ventricle while injecting the left main artery, revealing multiple communication between both of them



**Figure 2A–D.** CT scan imaging showing multiple large fistulae between the left main artery and left ventricle. Arrows pointing to the fistulae. Top (A, B): axial plan, bottom (C, D): sagittal plan

Computed tomography scan revealed the presence of ectasy of the left main artery without significant stenosis, associated with the presence of multiple fistulae between left ventricle and ramus intermedius

artery and between the circumflex and the left ventricle (Fig. 2, arrows).

We decide to opt for medical treatment with close monitoring. After 5 months, the patient is asymptomatic.

## Discussion

A coronary arterial fistula (also known as coronary arteriovenous malformation) is a connection between one or more of the coronary arteries and a cardiac chamber or great vessel, bypassing the myocardial capillary bed.

Coronary artery fistulas are present in 0.002% of the general population and are visualized in nearly 0.25% of the patients undergoing cardiac catheterization [1].

Often asymptomatic, it may be revealed by a complication as myocardial ischemia, myocardial infarction, congestive heart failure, or sudden death [2]. Symptoms may include dyspnea or angina of effort and occasionally arrhythmias. If angina is reported, it may be due to coronary artery steal [3].

The electrocardiogram may show the effects of left ventricular volume overload and occasionally ischemic changes. The chest X-ray is normal, but occasionally moderate cardiomegaly may be present when there is a large left-to-right shunt.

It is difficult to define the detailed anatomy of the fistula with echocardiography. Clues may be present when the coronary artery is enlarged or ecstatic.

The main diagnostic technique is cardiac catheterization and angiography. Selective coronary angiography of both the coronary arteries is needed to confirm the diag-

nosis, the detailed anatomy and the presence of multiple fistulas.

Surgery involves internal closure of the fistula within the receiving chamber or vessel whenever feasible. Catheter closure of the fistulas is now considered to be an effective and safe alternative to surgery [4]. The aim of catheter closure is to occlude the fistula artery as distally and as close to its termination point as possible. The choice of the equipment and the technique depends on the age and size of the patient, the catheter size that can be used, the size of the vessel to be occluded and the tortuosity of the catheter course to reach the intended point of occlusion [5].

## Conclusion

Coronary artery fistula is a rare but can be life threatening condition. Early diagnosis can improve outcome and guide the choice of the correct option for treatment. Either surgery closure or catheter closure of the fistula are effective methods.

## Conflict of interest(s)

All authors disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations that could inappropriately influence their work.

## Streszczenie

Przetoka wieńcowa to rzadka wada naczyniowa polegająca na obecności połączenia między jedną lub większą liczbą tętnic wieńcowych a jamą serca lub dużym naczyniem krwionośnym. Powikłania obejmują podkradanie krwi z przyległego obszaru mięśnia sercowego, zakrzepicę i zatorowość, niewydolność serca, migotanie przedsionków, pęknięcie, zapalenie wsierdzia/zapalenie ściany tętnic i zaburzenia rytmu.

W niniejszej pracy przedstawiono przypadek 73-letniej chorej przyjętej do szpitala z powodu niestabilnej dławicy piersiowej. Koronarografia ujawniła poszerzenie pnia lewej tętnicy wieńcowej oraz obecność dużej mnogiej przetoki wieńcowo-komorowej między lewą komorą a gałęzią pośrednią i gałęzią okalającą.

Słowa kluczowe: przetoka wieńcowa, dławica piersiowa, koronarografia, choroba wieńcowa

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## References

1. Dodge-Khatami A, Mavroudis C, Backer CL. Congenital Heart Surgery Nomenclature and Database Project: anomalies of the coronary arteries. *Ann Thorac Surg.* 2000; 69(4 Suppl): S270–S297, indexed in Pubmed: [10798435](#).
2. Kugelmass AD, Manning WJ, Piana RN, et al. Coronary arteriovenous fistula presenting as congestive heart failure. *Cathet Cardiovasc Diagn.* 1992; 26(1): 19–25, indexed in Pubmed: [1499058](#).
3. Oshiro K, Shimabukuro M, Nakada Y, et al. Multiple coronary LV fistulas: demonstration of coronary steal phenomenon by stress thallium scintigraphy and exercise hemodynamics. *Am Heart J.* 1990; 120(1): 217–219, indexed in Pubmed: [2360509](#).
4. Perry SB, Rome J, Keane JF, et al. Transcatheter closure of coronary artery fistulas. *J Am Coll Cardiol.* 1992; 20(1): 205–209, indexed in Pubmed: [1607526](#).
5. Qureshi SA. Coronary arterial fistulas. *Orphanet J Rare Dis.* 2006; 1: 51, doi: [10.1186/1750-1172-1-51](#), indexed in Pubmed: [17184545](#).