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Research Letter

A case of coronary microfistula: A newborn microfistula

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Plague rupture

ABSTRACT

Coronary artery fistula is an abnormal connection between a coronary artery and a cardiac chamber, a great artery or the vena cava. Although coronary artery fistulas are known to be congenital malformations they might occur due to infection, trauma or may be iatrogenic. We present a case with acquired coronary microfistula, without any history of interventional procedure.

1. Introduction

Despite the fact that coronary artery fistulas are known to be rare, congenital malformations, occasionally they appear as acquired solitary fistulas. Most patients with coronary artery fistulas are asymptomatic. In our report, a patient with idiopathic acquired coronary fistula is described, and possible causes are discussed.

2. Case

A 56-year-old male patient was admitted to the emergency department with recurrent chest pain. He had hypertension and was on metoprolol and ramipril. Upon physical examination, ECG and cardiac biomarkers were normal. 2D echocardiography revealed normal systolic function and Grade I diastolic dysfunction. The patient had history of coronary angiography (CAG) performed a year ago that showed normal coronary arteries (Fig. 1), and at the same time echocardiography revealed Grade III diastolic dysfunction. CAG was performed again due to persistent chest pain and revealed a new microfistula, between left coronary artery and the left ventricle cavity with no evidence of atherosclerotic disease (Fig. 2). Myocardial perfusion scintigraphy showed no ischemia or infarct, and the patient was discharged with appropriate medical treatment.

3. Discussion

Coronary fistulas are rare, with the incidence being 0.002% in general population, although some CAG series reveal an incidence of 0.3–0.8%.[1] There are two types; solitary fistulas and coronary ventricular multiple microfistulas, Solitary fistulas account for approximately of 74–90% of all.[2] Acquired coronary artery fistulas typically occur after infection, trauma or they might be iatrogenic in origin and are generally known to result in solitary fistulas.[3] As seen in our case, it is known that acquired, idiopathic microfistulas may also develop in normal coronary arteries. Clinical presentation depends on the size, volume and location of coronary microfistulas. Depending on the volume of the shunt, increase in diastolic volume load may result in dyspnea and chest pain. Stierle et al.[4] have shown that coronary steal due to microfistula plays an important role in myocardial ischemia and myocardial ischemia rate is reported to be 29–50% in patients with this anomaly.[5] Coronary microfistulas can appear depending on pressure changes in fistula region or plaque rupture in coronary microcanals. Drugs such as beta-blockers and calcium channel blockers may trigger formation of coronary microfistulas by decreasing left ventricular end-diastolic pressure (LVEDP).

In our case, at time of the first CAG the patient was not taking metoprolol and ramipril. Coronary microfistula was

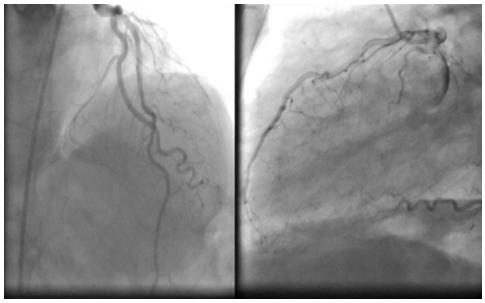

Fig. 1 – Normal coronary angiography.

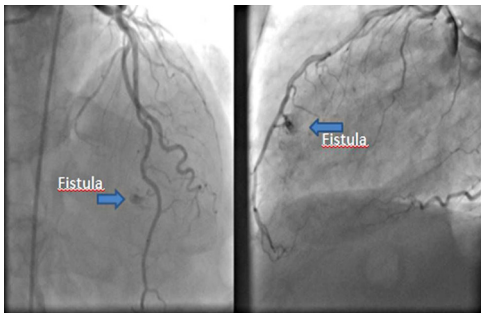

Fig. 2 – Coronary microfistula at mid part of the left anterior descending artery.

detected one year later with Grade I diastolic dysfunction on echocardiography. We believe that, coronary microfistula appeared due to the decrease of LVEDP or micro plaque rupture in coronary microcanals.

4. Conclusions

Although coronary microfistulas are thought to be congenital, occasionally they appear as acquired solitary fistulas. The possibility that plaque ruptures, which may develop in coronary microcanals, may lead to the formation of micro-fistulas in time, should be remembered. Furthermore, decrease in LVEDP might trigger the formation of already existing coronary microfistulas. However, answers to these questions require more studies to be carried out.

Conflicts of interest

The authors have none to declare.

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