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Case Report

MAIN LEFT CORONARY PRINZMETAL ANGINA: A RARE CAUSE OF ACUTE MYOCARDIAL INFARCTION AND DILATED CARDIOMYOPATHY.

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Abstract

Prinzmetal's angina is a rare cause of chest pain due to invasive coronary artery spasm. Patients may experience ischemic electrocardiographic changes and a severe coronary spasm that can be documented with invasive methods such as cardiac arteriography. Among the risk factors, emotional stress and smoking stand out. This work describes a case of Prinzmetal's Angina documented with imaging tests as the main cause a dilated cardiomyopathy.

Key Words: Acute Coronary Syndrome; Angina Pectoris; Coronary Vessels; Cardiac Catheterization; Magnetic Resonance Angiography

INTRODUCTION

Prinzmetal's Angina is a rare cause of chest pain. It occurs when a coronary artery goes into spasm, usually among young patients leading to angina pectoris with electrocardiographic changes. 1The spasm can be focal or diffuse and affect the epicardial or microvascular coronary arteries, in addition there is a risk of sudden death, acute coronary syndrome, syncope and arrhythmias. Known triggers are emotional stress and smoking.2 One of the first descriptions of Prinzmetal's Angina highlights a patient with intense chest pain, an ECG with a ST-segment elevation and documentation of severe coronary spasm on coronary arteriography and pain improvement nitrates prescripton.3 We hereby describe a case of Prinzmetal's angina, documented spasm on coronary angiography causing myocardial infarct and ventricular dysfunction.

CASE REPORT

A 60-year-old man, with a history of hypertension, smoking and intermittent atrial fibrillation, came to our clinics with a history of acute myocardial infarction with ST-segment elevation in the anterior leads and cardiorespiratory arrest 10 years ago. In that occasion he underwent cardiac catheterization that showed occlusion of the left main coronary artery with approximately 25 at 50% in the proximal artery portion, during the examination it developed spasm in the trunk and subocclusive obstruction, which was resolved with intra-coronary nitrate, confirming the diagnosis of Prinzmetal's angina.

The patient by himself had not been followed up by a cardiologist for about 5 years, when he sought specialized medical assistance because of reccurence of angina and dyspnea on exertion, with marked limitation of physical activity (class III – New York heart association). He also complained of orthopnea.

Echocardiography depicted an eccentric hypertrophy, and important segmental contraction impairment: mid anterior, anteroseptal, inferoseptal, inferior and furthermore apical anterior and septal segments were akinetic; left ventricular ejection fraction estimated by Simpsom method was 20%

Heart failure treatment was then started with distinguished symptoms improvement: Enalapril 5mg every 12 hours; Spironalactone 25mg/day; Furosemide 40mg/day; Metoprolol succinate 25mg/day; Simvastatin 40mg/day; Amiodarone 200mg/day; Omeprazole 20mg and Warfarin.

A new cororary angiography study was performed five years after the first one and it revealed a 50%, luminal reduction of the left main coronary artery (Figure 1).

A cardiac magnetic resonance (CMR) imaging was then performed. CMR demonstrated an ejection fraction of 28.4%, and the presence of late transmural subendocardial enhancement (>50%) depicted in the anterior wall (Figure 2). Thus, a dilated ischemic cardiomyopathy was confirmed.

A new cardiac catheterization was performed in the present year, after medical treatment, which showed an unobstructed left main coronary artery but slowed flow predominantly in the anterior descending artery, suggestive of microvascular disease (figure 3).

DISCUSSION

Prinzmetal's angina has been described in the literature due to the presence of chest pain with ST-segment elevation on electrocardiogram and visualization of coronary spasm on arteriography, a descrip-

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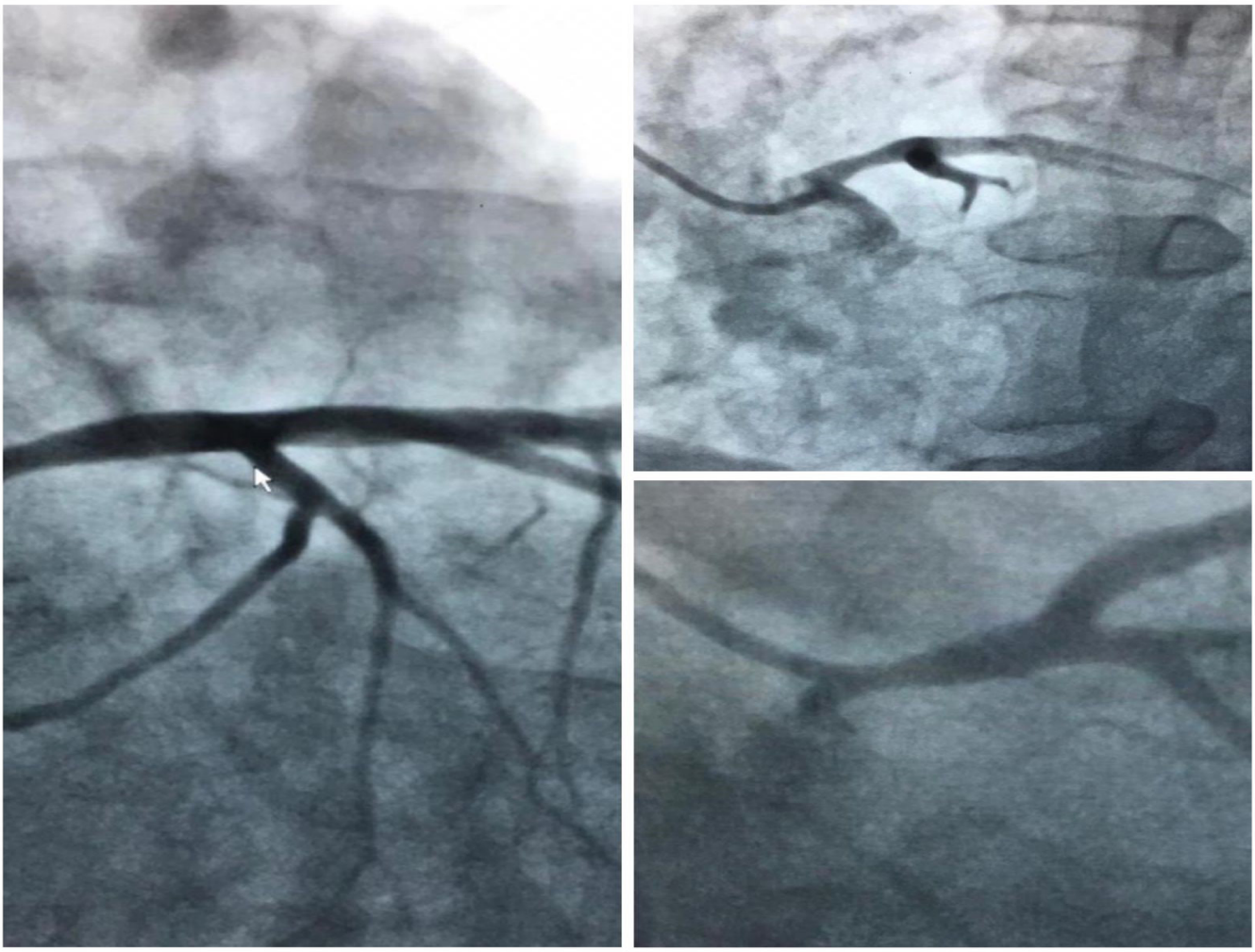

Figure 1: *left main coronary artery angiography: on note there is an significant initial stenotic lesion.*

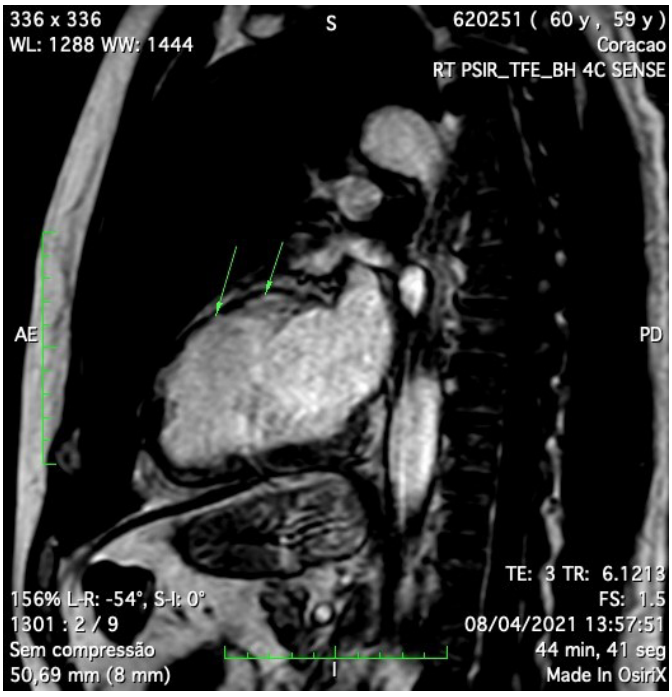

Figure 2: *Two chamber view showing the anterior and inferior walls. The arrows point to a transmural myocardial infarction detected by late gadolinium enhancement extending for more than 50% on the entire thickness of the anterior wall.*

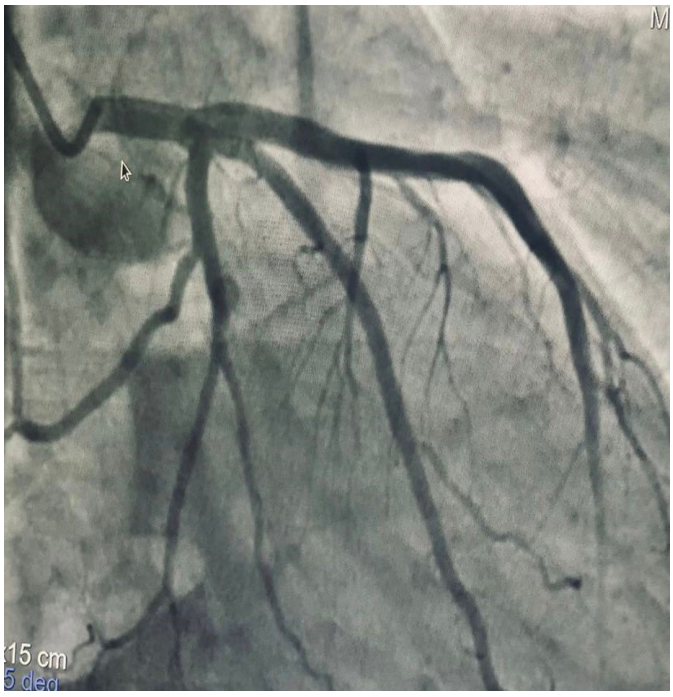

Figure 3: *coronary angiogram depicting no stenosing lesion.*

tion similar to the present case reported.

Diagnosis of coronary vasospasm includes: angina that improves with the use of nitrate, transient ischemic changes on ECG and direct visualization of coronary spasm.

Some patients may need provocative tests to visualize the spasm. The use of acetylcholine, ergotamine and hyperventilation are drugs used to induce coronary spasm. 4

Among risk factors for coronary spasm, previous studies revealed an association with smoking, this investigation was carried out in Asian ethnicity patient. Futhermore, this risk factor is more relevant than age, systemic arterial hypertension and diabetes mellitus. 5

Adequate risk assessment of life threating complications in patients with Prinzmetal's Angina is essential. Ventricular arrhythmias that can progress to cardiac arrest rhythms can occur as important complications. Non-dihydropyridine calcium channel blockers, beta-blockers and implantable cardioverter-defibrillator (ICD) are possible available therapies that demonstrate effectiveness to prevent rhythm disturbances. 6

The treatment of Prinzmetal's Angina involves a lifestyle change approach, avoiding smoking and using medications such as calcium channel blockers and nitrates, and in some cases the need for more invasive approaches such as coronary stent implantation. Regardless the risks of complications such as arrhythmias, acute myocardial infarction and sudden death, usually the prognosis is good.2

We describe a rare case of possible coronary spasm as a cause of ischemic dilated myocardiopathy evidenced by angiographic studies and a cardiac MIRI.

This study highlights the importance of clinical investigation and suspicion of rare causes of ischemic and fibrosis injury leading to myocardial dilation.

CONCLUSION

It is concluded that Prinzmetal's Angina is a poorly diagnosed condition with several possibilities of complications, but current treatments can lead to survival of affected patients, more studies are needed to assess the prevalence of such condition as a cause of dilated ischemic cardiomyopathy.

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