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CORONARY SPASM, Does It Exist On Healthy Coronary Artery?

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ABSTRACT
The incidence of coronary spasm appears to be decreasing, probably due to the widespread use of bradycardia calcium channel blockers, statin, and reducing smoking also. Many studies have shown the pathological association of atheroma plaque and coronary spasm. The new imaging techniques: Optical coherence tomography (OCT) and Intravasculaire ultrasound (IVUS), allows accurate analysis of arterial tunnels. In this article, we report a case of a patient who presented with refractory spastic angina, wich was complicated by acute coronary syndrome many month later.

Introduction

Vasospastic angina (VSA), called Prinzmetal angina, has been reported for the first time more than 50 years ago, but remains poorly understood. VSA is a clinical entity associated with hyper-reactivity of large coronary arteries to vasoconstrictor stimuli.1 The importance of diagnosing VSA relates to the major adverse events including: sudden cardiac death,2acute myocardial infarction3 and syncope.4 So, avoiding potential coronary artery spasm by the use of established effective therapies, allows to prevent these adverse events. Case report : A 50 years old women, arresting smoking for 2 months, under nicotine substitutes. No history of cardiovascular disease nor other medical problems. No medical therapy, menopausal and no illicit drug use. She complains of acute thoracic chest pains, evocating an angina pectoris at rest and was admitted to the intensive coronary unit for acute coronary syndrome without ST-elevation. The Per-critic electrocardiogram shows negative T waves in the antero-septo-apical territory, Troponin was positive at 0.49 ng/ml, the trans-thoracic echocardiography showed an apical akinesia, with a normal left ventricle ejection fraction at 50 %. She underwent a coronary angiogram which did not show any coronary artery disease, nor dissection . Two days later, she made a recurrent angina, sensitive to glyceryl trinitrate, without re-ascending troponin . The per-critical ECG showed an offset of the ST to V1-V2 She underwent a 2nd coronary angiogram which suspected a plaque image of the ostial LAD responsible for a non-significant stenosis Confirmed by the OCT which showed a fresh flat thrombus with a ruptured plaque of the ostial of LAD Decision of a medical treatment by double platelet aggregation and high dose of statin with repeating the coronary angiogram after 7 days. Evolution marked by the occurrence of multiple angina, always in the morning, with ST- elevation, sensitive to the glyceryl trinitrate, without enzymatic movement, motivating the introduction of anti-spastic treatment. The patient was placed under Risordan® and Tildiem® IV, then relayed orally by Corvasal®, Isoptin® and Discotrine®. She had a 3rd coronary angiogram which showed the disappearance of the plaque of the ostial LAD, and the OCT wasn't realized in the absence of residual lesion The evolution was marked by the occurrence of anterior myocardial infarction during peritonitis surgery. A coronary angiogram showed a LAD occlusion at the plaque seen by the OCT, an angioplasty with the placement of an active stent was performed.

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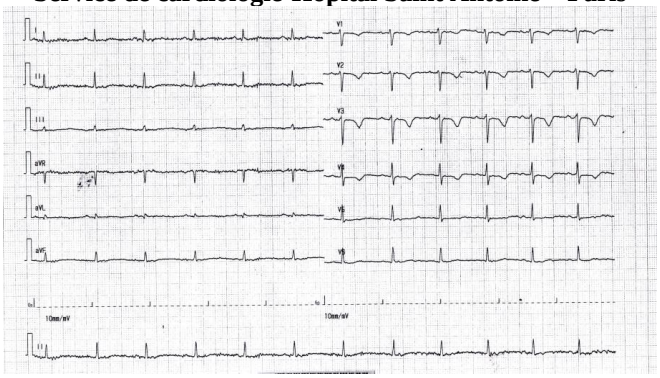

Figure 1. negative T-waves in V1-V2-V3-V4 without ST-elevation.

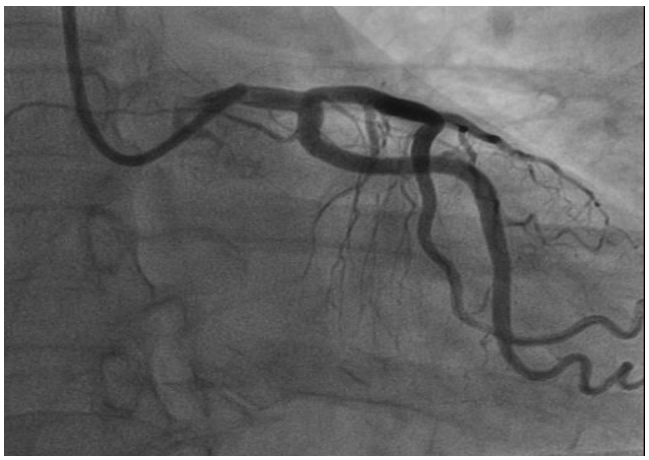

Figure 2. Normal Coronary angiogram.

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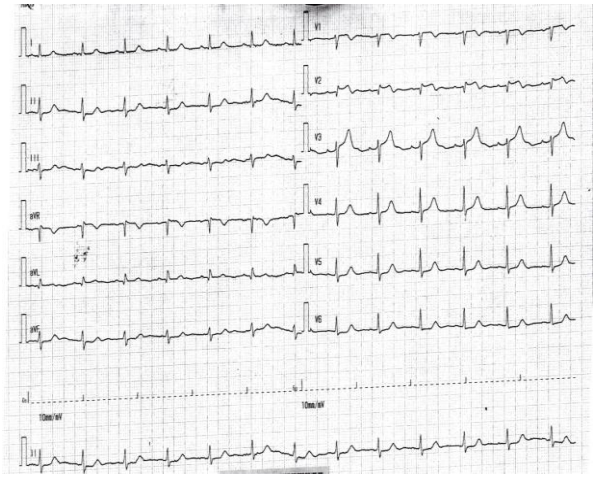

Figure 3. positif ST on V1-V2.

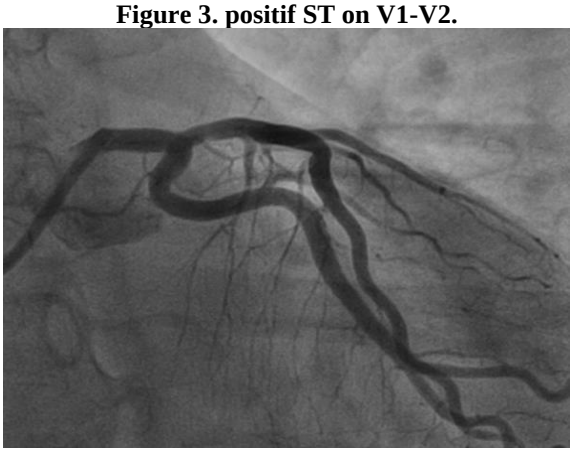

Figure 4. Coronary angiogram showen an ostial LAD plaque.

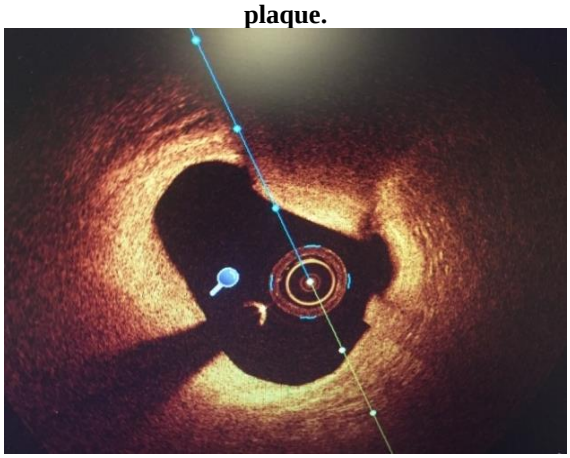

Figure 5. Fresh plane thrombus (posterior attenuation related to red blood cells).

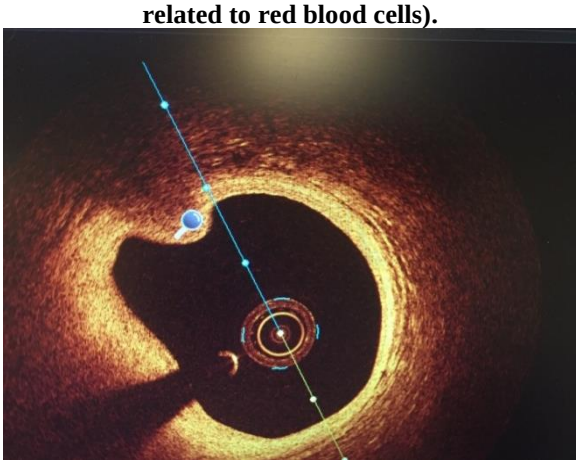

Figure 6. A ruptured plaque of the ostial LAD responsible for a non-significant eccentric stenosis.

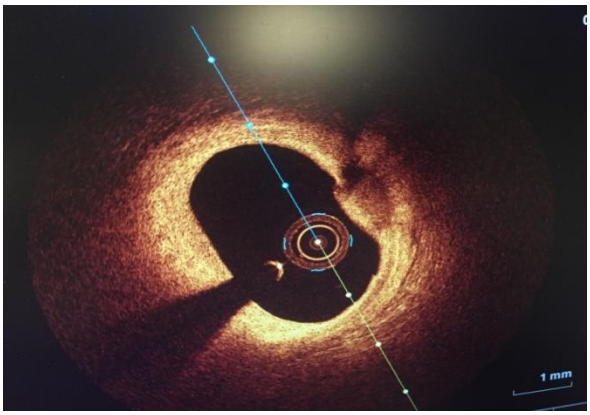

Figure 7. Calcified plaque (black zone) with image of rupture of the ostial LAD.

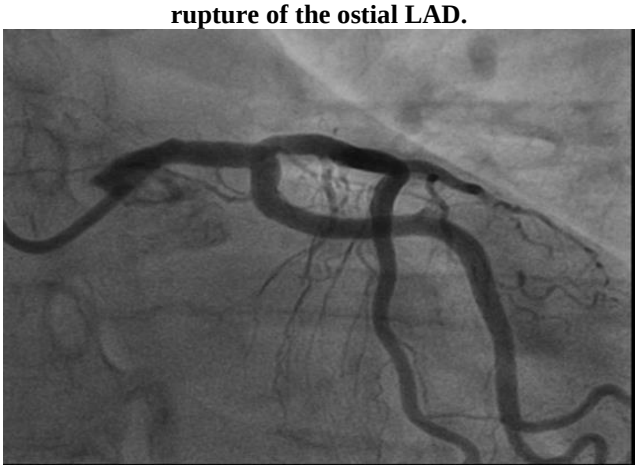

Figure 8. Normal Coronary angiogram.

Discussion:

Diagnosis and management of VSA is very challenging. However, an accurate diagnosis remains of paramount importance , many study have suggested the potential value of OCT to diagnosed coronary artery disease , Our case report describes a recurrent VSA related to plaque rupture diagnosed with the use of OCT. it's a new intravascular imaging modality that allows cross-sectional imaging of tissue with a resolution of of 10 µm.

Among the first publications concerning OCT , an article appeared in "circulation" in 2003 Concerning the use of OCT to quantify macrophage content in atherosclerotic plaques [5]. Indeed, the macrophage degradation of fibrous cap matrix is an important contributor to atherosclerotic plaque instability. OCT images of 26 lipid-rich atherosclerotic arterial segments obtained at autopsy were correlated with histology. Cap macrophage density was quantified morphometrically by immunoperoxidase staining with CD68 and smooth muscle actin and compared with the standard deviation of the OCT signal intensity at corresponding locations. There was a high degree of positive correlation between OCT and histological measurements of fibrous cap macrophage density (r0.84, P0.0001), witch suggest that this technology may be well suited for identifying vulnerable plaques in patients[5].

In a recent study of patients with coronary spasm , the aim was to define the morphological features of coronary artery spasm sites using optical coherence tomography in patients with vasospastic angina (VSA). 69 patients diagnosed with VSA (confirmed with provocative spasm testing)was included , patients who had fixed stenosis(>50% of the lumen diameter) in the spasm site; comorbidities such as congestive heart failure, cardiomyopathy, or chronic kidney disease; or past history of fatal arrhythmias, prior myocardial infarction, or cardiogenic shock was excluded. OCT was performed at

the spasm site after administration of 200 mg of intracoronary nitroglycerin [6].

Almost al VSA patients had coronary plaques at OCT (79/80 spas sites) . Fibrous cap disruption was detected at 3 sites (4%).OCT-defined erosion was observed at 21 spasm sites (26%). Thrombus with lumen irregularity was observed in 20 sites (25%), whereas 1 site had thrombus without lumen irregularity. Lumen irregularity without thrombus was observed at 49 spasm sites (61%).[6] Therefore , OCT could had incremental value for the diagnosis of VSA showing the presence of coronary plaques, followed by lumen irregularity without thrombus erosion and thrombus were present in less than a quarter.

The aim of this study was to investigate the use of OCT for identifying macrophages in fibrous caps.

Conclusion:

OCT can confirm the absence of significant atherosclerosis or indicate the degree of subclinical atherosclerotic lesion formation. This may have relevance to modulate the aggressiveness of medical therapeutic strategies for primary prevention

References Bibliographies:

1. Kaski JC, Crea F, Meran D, Rodriguez L, Araujo L, Chierchia S, Davies G, Maseri A. Local coronary supersensitivity to diverse vasoconstrictive stimuli in patients with variantangina. Circulation 1986;74:1255–1265.

2. Igarashi Y, Tamura Y, Suzuki K, Tanabe Y, Yamaguchi T, Fujita T, Yamazoe M, Aizawa Y, Shibata A. Coronary artery spasm is a major cause of sudden cardiac arrest in survivors without underlying heart disease. Coron Artery Dis 1993;4: 177–185.

3. Da Costa A, Isaaz K, Faure E, Mourot S, Cerisier A, Lamaud M. Clinical characteristics, aetiological factors and long-term prognosis of myocardial infarction with an absolutely normal coronary angiogram: a 3-year follow-up study of 91 patients. Eur Heart J 2001;22:1459–1465.

4. Igarashi Y, Tamura Y, Tanabe Y, Fujita T, Yamazoe M, Shibata A. Angina-linked syncope and lack of calcium antagonist therapy predict cardiac arrest before definitive diagnosis of vasospastic angina. Coron Artery Dis 1994; 5: 881–887.

5. Tearney et al .Quantification of Macrophages by OCT-Circulation. 2003;107:113-119.

6. J Am Coll Cardiol Img 2015;8:1059–67) © 2015 by the American College of Cardiology Foundation.