Spontaneous Coronary Artery Dissection with Clinical Presentation of Acute Myocardial Infarction

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Abstract: SCAD (spontaneous coronary artery dissection) proves to be a pathology of several manifestations, whose clinical diagnosis is a challenge for emergency departments. Therefore, their early identification and knowledge of the various forms of presentation are mandatory for optimal medical therapy. We present a case report of a 45-year-old patient who was admitted to the coronary unit showing symptoms and laboratory tests compatible with myocardial infarction. Complete diagnosis was obtained only with more specific exams. The manifestations of the disease in the case described and the main features of the disease are discussed.

Key words: Spontaneous coronary dissection, AMI (acute myocardial infarction).

1. Introduction

The recognition of distinct etiologies of atherosclerosis in AMI (acute myocardial infarction), such as SCAD (spontaneous coronary artery dissection), is essential for the correct conduct of each case. Similar cases previously reported, show a pattern of disease involvement. Even so, their manifestations may be varied and the outcomes depend on the degree of involvement and the treatment selected [1].

2. Case Presentation

Report made by review of medical records at the Coronary Unit of the Heart Hospital of Mato Grosso do Sul. Female, 45 years old with a history of Hepatorenal Polycystic Disease, smoker admitted on 03/14/2016, reporting precordial pain in tightening, of high intensity, with irradiation to the left upper limb, without triggering factors or relief and associated with

dyspnea 5 hours ago. Physical exam was normal. 12-lead electrocardiogram with no evidence of acute ischemic changes, CK-MB 49.8 U/L, CPK 660 U/L, Troponin 1,207 ng/L; diagnosis of non-ST-segment AMI. Coronary angiography (CA) on 03/15/2016, showed stenosis of 40% in the middle third of the left anterior descending coronary artery (LAD) and anteroapical hypokinesia of the left ventricle (LV). Therefore, a Coronary Tomography of Optical Coherence was performed on 3/19/2016, revealing flaps in proximal and middle thirds of LAD, indicating coronary dissection added to significant luminal loss in the middle third of LAD with a plaque load of 70% and ruptured plaque. Insertion of a pharmacological stent into the lesion was the best indication at the time. However, post-procedure, complications were detected: dissection at the distal edge of the stent, dissection extending from left main coronary artery to middle third of LA and proximal third of circumflex coronary artery, with hematoma compressing true light. Again, there was a need for implantation of more

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pharmacological stents, this time under the left coronary ostium and the proximal third of the circumflex coronary artery. The new procedure was a success, with control CA demonstrating patent stents. At the cardiology outpatient clinic on 03/02/2017, the patient reported mild dyspnea as the only symptom. Then, a new CA showed intrastent restenosis of 90% of the left coronary ostium. Finally, an approach with angioplasty plus attack dose and maintenance of Tirofiban for 24h was performed. The procedure did not show any apparent complications and resulted in optimal therapeutic outcome.

3. Discussion

Spontaneous coronary artery dissection is a rare cause of acute myocardial ischemia. Female SCAD patients are characterized by dissection of the left coronary arteries, an absence of coronary atherosclerosis, and an increased risk of occurrence during the peripartum state and estrogen treatment [2]. Clinical presentation can range from chest pain symptoms alone to ST-segment-elevation myocardial infarction, ventricular fibrillation, and sudden death [3]. The diagnosis is made principally with invasive coronary angiography, although adjunctive imaging modalities such as computed tomography angiography, intravascular ultrasound, and optical coherence tomography may increase the diagnostic effectiveness [4]. The dissection usually occurs in the outer media and determines luminal occlusion by pushing the inner media against the opposing wall. Clot filling the false lumen may simulate coronary thrombosis at the naked eye, masking the dissection [5]. In most cases, external factors of oxidative stress, in the vascular endothelium, probably trigger instability of existing atheromatous plaques, resulting in the initial flap. Mortality rate of the disease is high and a review of published reports showed that 69% of the cases were diagnosed at necropsy [6]. The optimal management is uncertain, in part due to the limited clinical experience. A wide range of approaches, including conservative

management, emergency revascularization with PCI (percutaneous coronary intervention) or CABG (coronary artery bypass grafting), fibrinolytic therapy (with or without subsequent PCI), mechanical hemodynamic support, and cardiac transplantation have been reported [7-9]. However, it is notable that all patients who were treated with an initial conservative strategy experienced a benign in-hospital course and a number exhibited angiographic resolution on some follow-up studies [4]. Therefore, the greatest challenge from now on reveals itself in fully clarifying the pathogenesis of the disease and creating protocols of prevention and conduct, in addition to encouraging further studies on the subject.

4. Conclusions

SCAD is a rare event with an estimated incidence about 0.1% to 0.4% [10]. Sudden death constitutes the clinical presentation in the majority of cases [11]. It is increasingly acknowledged to be an important cause of acute coronary syndrome in women, representing nearly a quarter of those cases with ≤ 50 years old [7]. The pathogenesis, unfortunately, is poorly understood. In the face of a high incidence of sudden death, and of restricted pathogenic knowledge, reporting cases of SCAD are essential in order to optimize its recognition.

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