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Acute Coronary Syndrome Revealing Coronary Artery Ectasia: Case Report

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Abstract **Case Report**

Coronary artery ectasia (CAE) is a dilation of the coronary artery lumen. The term "ectasia" differs from "coronary aneurysm". The first one refers to diffuse dilation of a coronary artery, while the second designate a focal coronary dilation. In most of cases, it is associated with atherosclerotic disease. CAE predispose to acute coronary events because it disturbs coronary flow and increases blood viscosity. Conventionally, CAE was treated by oral anticoagulants and it has been considered as a valid treatment option. The usual treatment of acute coronary syndrome (ACS) including dual antiplatelet therapy (DAPT) is widely employed in CAE patients presenting with ACS.We report the case of a 71year-old man who suffered from angina chest pain revealing a myocardial infraction with inferior ST-elevation. Coronary angiography demonstrated diffused coronary artery ectasia with thrombotic occlusion in the distal segment of right coronary artery. It was managed with medical treatment including DAPT and oral anticoagulation.

Keywords: Coronary artery ectasia, acute coronary syndrome, coronary angiography, coronary scan, oral anticoagulation, dual antiplatelet therapy.

INTRODUCTION

Coronary artery ectasia (CAE) is an uncommon condition characterized by dilatation of the coronary artery lumen exceeding the diameter of adjacent healthy reference segment by 1,5 times [1,2]. Approximately, 50% of cases of CAE are attributed to atherosclerosis, 20–30% is thought to be congenital in origin, and only 10–20% is associated with inflammatory or connective tissue disease [3, 4]. The management of ACS associated to CAE has not been adequately addressed [3, 4]. However, the main pillars consist on the removal of the obstructive lesion, antiplatelet therapy, controlling of cardiovascular risk factors, and initiation of long-term anticoagulation to prevent recurrent cardiovascular events [3, 4].

CASE PRESENTATION

A 71-year-old male patient was admitted to emergency department due to typical angina chest pain that has been evolving for 72 hours without any other symptoms. The patient's cardiovascular risk factors are hypertension treated by Losartan, inactivity and abdominal obesity. There was no history of diabetes, dyslipidemia, smoking or family history of CVD. Examination revealed a blood pressure of 170/100 mmHg, pulse rate of 102 bpm and respiratory rate of 19 times/minute. Cardiorespiratory examination was normal as well as the rest of the clinical examination.

Electrocardiography showed sinus rhythm of 100 beats/minute, a QS complex and ST segment elevation in inferior leads extended to the right leads with T wave inversion, associated to reciprocal changes in lateral leads (figure 1).

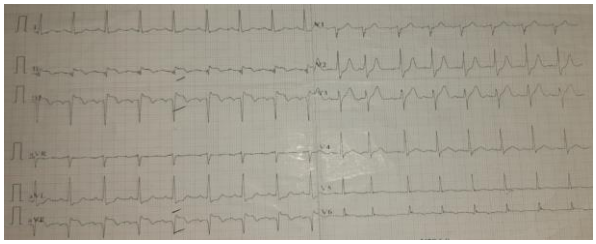

Fig-1: Twelve-lead ECG showing ST segment elevation, QS complex in II, III, avF and ST depression in lateral leads

Transthoracic echocardiogram showed a hypertrophic left ventricle in moderate dysfunction (FEVG=45%) with inferior and inferoseptal hypokinesia on the basal and mid segment, inferior hypokinesia on the apical wall.

Bloods tests showed a Troponin I at 3068 µg/L.The rest of the biological workup was within normal limits. An immunological test was requested as part of the etiological assessment was normal. The patient has received a loading dose of aspirin and clopidogrel along with enoxaparine. Coronary angiography was performed within 24 hours showing diffuse and irregular coronary artery ectasia, with a long thrombotic occlusion of distal segment of the right coronary artery (figure 2). A follow up by a coronary scan revealed a thrombus in distal right coronary artery (figure 3).

Fig-2: Long thrombotic occlusion of distal segment of the right coronary artery

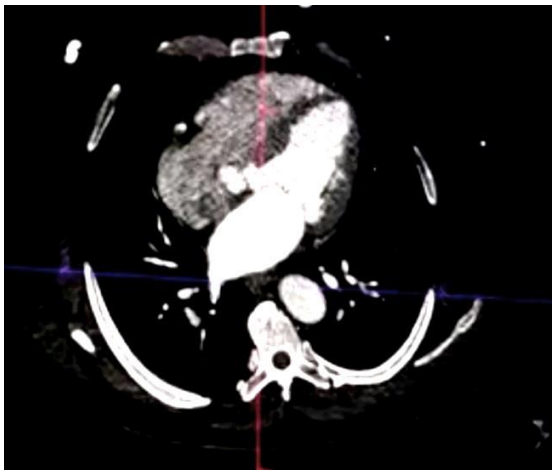

Fig-3: Coronary scans showing a thrombus in RCA

The patient did not undergo angioplasty because there was not a suitable stent for the size of coronary artery. Standard protocol for acute coronary syndrome including dual antiplatelets (aspirin 75mg and clopidogrel 75mg), bisoprolol 2,5mg, perindopril 2,5mg and atorvastatine 80mg was initiated along with oral anticoagulation.

Dual antiplatelet therapies (DAPT) with anticoagulation were given for a period of 1 month. The clopidogrel 75 mg and rivaroxaban 20 mg will be maintained for 1 year, then clopidogrel will be stopped and only the oral anticoagulation will be kept for lifelong treatment.

A control of ventricular function at one month showed an improvement, although, the patient still suffered from stress angina.

DISCUSSION

CAE has generally been defined according to the ratio of the size of ectatic segment to that of the adjacent normal reference segment [5, 6, 11]. The prevalence of CAE varies between 1.2%-4.9% [2] with male to female ratio of 3:1 [2, 8]. Topographically, RCA is the most common vessel affected by ectasia (52%) while the circumflex was affected in 24%, the LAD in 16% of cases [6]. A classification was proposed by Markis *et al*. [7] based on the extension of ectasia: type I refers to diffuse ectasia of two or three vessels , type II as diffuse disease in one vessel and localized disease in another vessel; type III as a diffuse ectasia of one vessel only ; and localized segmental ectasia as type IV.

The thrombotic occlusion of ectatic coronary arteries is the result of a slow coronary flow velocity, which increases blood viscosity and activates coagulation [9, 10].

Because of coexistence of CAE with obstructive coronary lesions and myocardial infarction in most cases , aspirin has been proposed in all patients [11]. DAPT should also be instituted if percutaneous coronary intervention (PCI) is performed, but remains to be discussed otherwise. Erden *et al*. [8] call attention to the combination of triple therapy especially in acute myocardial infraction on CAE with high thrombotic burden.

Oral anticoagulation has been recommended by most studies for a long-time to reduce the risk of recurrence. In the study of Takahito *et al*. [10], patients who were treated with warfarin who had a percentage of time in target therapeutic range (%TTR) >_60% had a lower occurrence of major adverse cardiac events compared with those with %TTR <60% or without anticoagulation therapy [4]. Non vitamin K antagonist oral anticoagulant (NOAC), using Rivaroxaban has been shown to attenuate the atherosclerotic plaque progression and destabilization in apolipoprotein E-deficient mice by inhibiting pro-inflammatory activation of macrophages [13, 14].

In patients with coexisting obstructive lesions and symptoms or signs of significant ischemia despite medical therapy, percutaneous intervention (PCI) can be done [15].

CONCLUSION

CAE remains a rare cause of acute coronary syndrome with a complex pathophysiological process involving the interaction of various factors. Inadequate management increases the mortality and expose to the risk of recurrence of myocardial infraction.

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