



## Acute Coronary Syndrome Revealing An Ectatic Coronary Network: The Challenges of Management (Case Report)

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ARTICLE INFO	ABSTRACT
<p><b>Published Online:</b> 27 July 2023</p> <p>Corresponding Author: <b>Benatmane Asmae</b></p>	<p>Coronary ectasia is relatively a rare pathological entity, whose pathophysiological mechanisms and management principles are still poorly understood. Atherosclerosis is the predominant etiology with other causes that can be incriminated at lower percentages. These abnormalities expose to a major risk of intracoronary thrombosis by blood stasis, especially since they are most often associated with stenotic lesions conditioning the prognosis of patients. We report the case of a patient admitted to the emergency room for the management of an acute coronary syndrome without ST segment elevation with on coronary angiography an aspect of diffuse coronary ectasia affecting the 3 main coronary arteries, and we discuss a review of the literature concerning this type of condition and specifics of management.</p>
<p><b>KEYWORDS:</b> atherosclerosis, coronary ectasia, aneurysm, myocardial infarction, thrombosis, coronary angiography, anticoagulation.</p>	

### INTRODUCTION

Coronary ectasia is a condition that is defined as diffuse dilation of the diameter of the artery 1.5 times wider than the diameter of the adjacent normal segment (1); Unlike the coronary aneurysm where the dilation is focal (6). The prevalence is still underestimated, varying between 0.3 and 5% with a clear male predominance (3). These lesions can occur at any age and following various mechanisms, although atherosclerosis remains the most incriminated etiology in more than 50% of cases (4, 5), with other causes which can be detected, namely congenital diseases, Kawasaki disease, Takayasu vasculitis, infections, autoimmune and systemic diseases, cocaine, familial hypercholesterolemia...(4); The thrombotic risk of these lesions has been documented by small series and clinical case; For this purpose, the introduction of anticoagulation was discussed and proposed; The other therapeutic guidelines also remain poorly codified.

### CASE AND OBSERVATION

This is a 51-year-old patient with no modifiable cardiovascular risk factors and no significant pathological history; Admitted to the emergency room for the management of chest pain (H11 pain), substernal, constrictive, intense and prolonged, radiating to the left upper limb and the jaw, associated with nausea, without dyspnoea or other added

signs. The clinical examination found a conscious patient, stable on both hemodynamic and respiratory levels with a cardiovascular and pleuropulmonary examination which were without particularities. An electrocardiogram was performed showing a regular sinus rhythm with a ventricular rate of 60 bpm, normal axis, constant PR space at 160 ms, and negative T waves in the extended anterior. The biological assessment was without abnormalities except for a positive troponin level in kinetics of increase (121 and 450 \* normal); A transthoracic echocardiography was done revealing an aspect of ischemic heart disease (akinesia of the middle and apical segment of the anterior wall and hypokinesia of the septal wall) at the non-dilated stage of good systolic function LVEF 52%, with a slightly dilated aortic annulus at 26.5 mm while the other exploitable portions of the aorta were of normal size. The patient was transported at H12 to the catheterization room, having benefited from a coronarographic exploration made by right radial approach objectivizing an ectatic left coronary network on its entirety with a tight stenosis of the proximal segment of the IVA followed by training aneurysmal proximomedian \_flow TIMI III with a good downstream bed and an ectatic right coronary network but without significant stenoses, with indication of an angioplasty of the IVA not done given the unavailability of the adapted stent (To be reconvened when the material is

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available) . Post coronary angiography was simple, in particular no recurrence of angina, no signs of right or left heart failure, or local complications at the puncture site, with electrical monitoring which was unremarkable. The patient was put on medical treatment combining a bi anti-platelet

aggregation, an anticoagulant based on Warfarin, a statin, and an anti-ischemic treatment with good therapeutic compliance and favorable evolution.

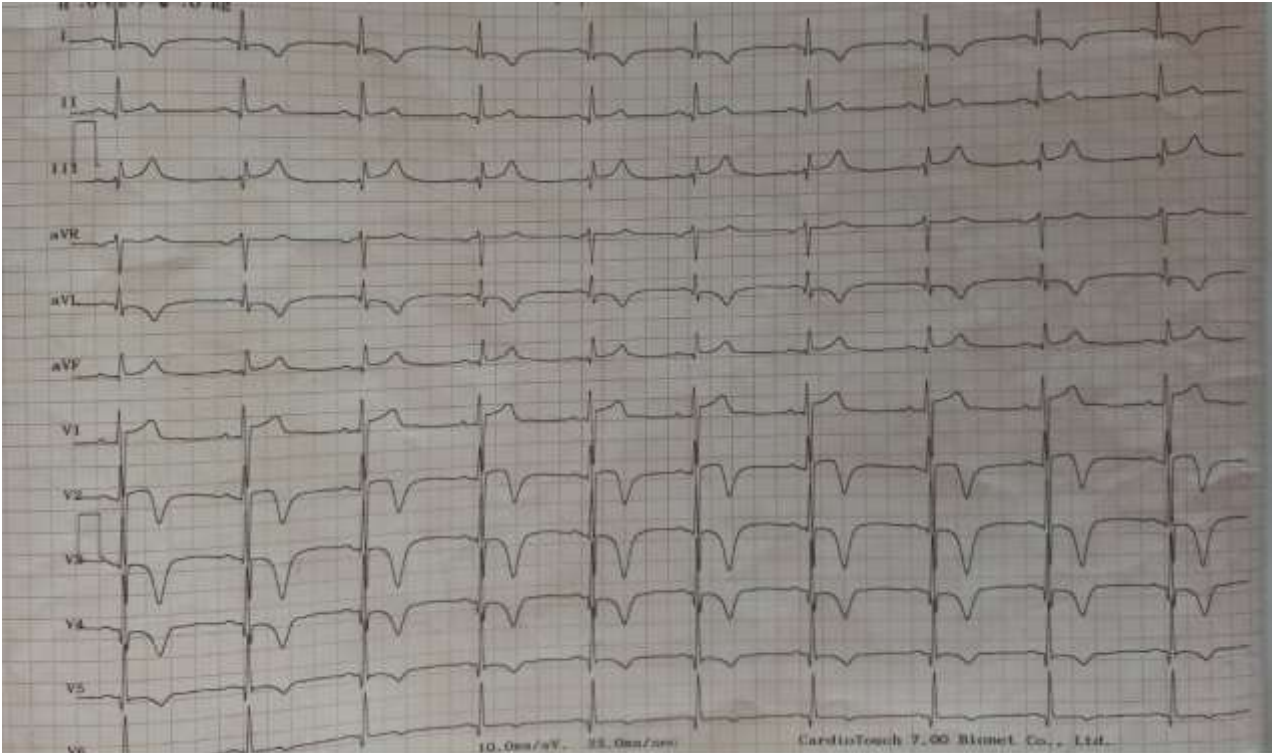


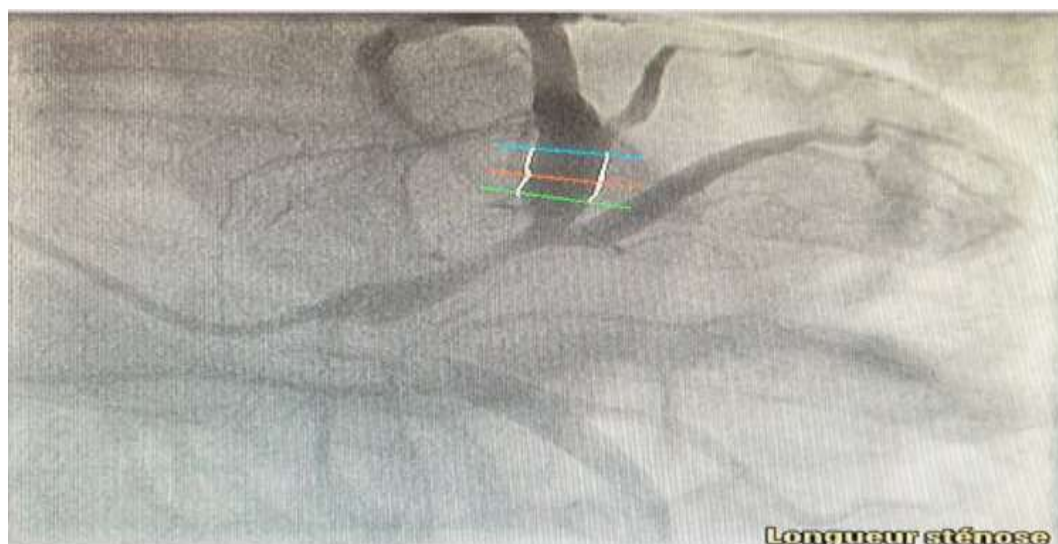
Figure 1: Electrocardiogram showing negative T waves in anterior hearing.



Figure 2: Echocardiography image \_ long axis parasternal section showing a dilated aortic arch.



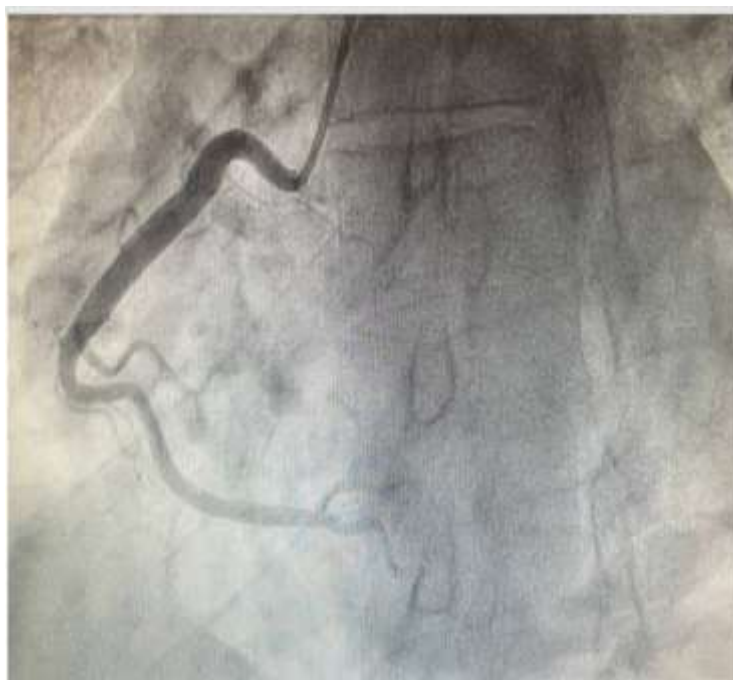
**Figure 3 and 4:** Cranial and spider views showing an ectatic anterior intraventricular artery with a tight proximal stenosis followed by proximal aneurysmal dilation.



**Figure 4**



**Figure 5:** Caudal incidence of an ectatic circumflex without stenoses.



**Figure 6:** Coronarographic image showing an ectatic right coronary free from stenosis.

Type of ectasia	Definition
<b>Type 1</b>	Diffuse ectasia with aneurysmal changes in 1 or more vessels
<b>Type 2</b>	Diffuse ectasia in one vessel and discreet in a second
<b>Type 3</b>	Diffuse ectasia in a vessel
<b>Type 4</b>	Discreet ectasia in a vessel

**Figure 7:** Summary table of the different types of coronary ectasia

## DISCUSSION

Although ectatic or aneurysmal coronary disease is considered rare given the paucity of data from randomized studies, the frequency of occurrence is increasingly increased with the advent of coronary imaging. Coronary ectasia can be detected incidentally in an asymptomatic patient thanks to coronagraphy or even coro CT, or in the context of an ischemic emergency as is the case for our patient. Until today, atherosclerosis is the predominant etiology in the elderly while Kawasaki disease is more present in children and young people. The common pathophysiological mechanism is a remodeling of the media with reduction of muscle cells, changes in the type of collagen synthesized, and destruction of the internal elastic lamina leading to a weakening of the media (5). While the mechanism leading to ectasia is still poorly understood. Coronary angiography remains the “gold standard” for evaluating ectatic or aneurysmal coronary arteries. However, delayed anterograde contrast filling, segmental reflux, and contrast stasis in the dilated coronary segment often hinder optimal imaging during this exam. For this effect, prolonged forceful injection must be necessary to avoid misinterpreting slow aneurysmal filling as thrombosis in situ, especially in giant aneurysms. In these cases, intravascular ultrasound has its place; it provides better

delineation of vessel wall structures, and allows accurate measurements of the ectatic segment and/or any stenosis as well as appropriate measurement of the stent if percutaneous angioplasty is planned (7). The prognosis is mainly conditioned by the associated atheromatous stenosis more than the ectasis disease itself. Although coronary rupture and dissection are fatal and rare complications which are added to the other repercussions of atheroma, thrombosis is a major complication to be feared given the lack of blood flow and the risk of stasis which is well correlated with the importance of ectasia. It is in this sense that several authors have advocated long-term oral anticoagulation in cases of vasculitis and others have proposed it generally, based on physiopathological assumptions and clinical cases. A recent AHA study of patients with coronary artery ectasia and myocardial infarction showed the efficacy of anticoagulation in this population in decreasing major adverse cardiac events including stent thrombosis and death (8). Another review of the literature published in 2019 confirmed this finding on 13 patients with myocardial infarction on coronary artery ectasia. The latter revealed the low rate of recurrence in patients on anticoagulation with platelet aggregation inhibitor compared to those on dual antiplatelet aggregation only (9). Myocardial revascularization is based on two main

components: surgery in the first place with repair or exclusion of the ectatic zone and bypass, or angioplasty with all the technical difficulties, in particular the choice of the type and size of the stent due to the disparity in the caliber between the healthy and ectatic segment (4). Improving the stent profile should increase the percentage of revascularization. The relevance of the management of coronary stenoses on ectasis atheroma is not well codified and the ideal would of course be to have multiple randomized studies and clinical trials which are interested in the evaluation of the various therapeutic strategies, to provide more solid evidence on this.

## CONCLUSION

The therapeutic management of coronary ectasia, as well as aneurysmal dilation, is a controversial area due to the lack of evidence. The need to multiply studies in this direction is essential for a better improvement of the prognosis of patients in the short and long term. We report the case of a 51-year-old patient with no cardiovascular risk factors, who presented with an ectatic and diffuse aneurysmal atheromatous network with significant stenosis, revealed by an acute coronary syndrome without ST-segment elevation, in whom revascularization was unsuccessful and not performed due to the unavailability of the appropriate stent, whereas anticoagulation was recommended for preventive purposes after discussion with the catheterizer team, in order to minimize the risk of recurrence.

**Conflicts of interest:** The authors declare no conflicts of interest.

## FIGURES

Figure 2: Echocardiography image \_ long axis parasternal section showing a dilated aortic arch.

Figure 3 and 4: Cranial and spider views showing an ectatic anterior intraventricular artery with a tight proximal stenosis followed by proximal aneurysmal dilation.

Figure 5: Caudal incidence of an ectatic circumflex without stenoses.

Figure 6: Coronarographic image showing an ectatic right coronary free from stenosis.

Figure 7: Summary table of the different types of coronary ectasia

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