

# Prise en charge de dissection spontanée d'une artère coronaire: à propos d'un cas

## Management of Spontaneous Coronary Artery Dissection: A case report

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### Résumé

**Introduction:** La dissection spontanée de l'artère coronaire fait partie des causes rares mais parfois mortelles du syndrome coronarien aigu, en particulier chez les femmes d'âge moyen.

**Objectif:** Suspecter le diagnostic de dissection spontanée de l'artère coronaire en cas de douleur thoracique aiguë chez une jeune femme, expliquer sa physiopathologie, les moyens diagnostiques, les modalités thérapeutiques et les moyens de surveillance.

**Observation :** nous rapportons le cas d'une femme de 36 ans sans facteurs de risque cardiovasculaire ni thromboembolique qui consulte pour une douleur thoracique manifestant un infarctus du myocarde antérolatéral aigu. La coronarographie a montré un trait de dissection en spirale dans le tronc commun gauche depuis son ostium jusqu'à sa bifurcation et une artère circonflexe occluse dès son ostium, elle a été traitée par traitement médical optimal avec une surveillance étroite par coroscanner. Une deuxième coronarographie a été réalisée devant la récurrence des douleurs thoraciques ayant conclu la disparition du trait de dissection et une re-perméabilisation de l'artère circonflexe.

**Conclusion :** la dissection spontanée des coronaires doit être toujours être suspectée chez les jeunes femmes se présentant pour un infarctus du myocarde. Le diagnostic est souvent confirmé par la coronarographie avec utilisation des nouvelles techniques d'imagerie intracoronaire (IVUS et OCT). Trois modalités thérapeutiques sont disponibles: le traitement médical, l'intervention percutanée de l'artère coronaire et la chirurgie.

### Mots-clés

Dissection coronaire-spontanée-infarctus du myocarde-cas clinique.

### Summary

**Introduction :** Spontaneous coronary artery dissection (SCAD) is among the rare but sometimes fatal causes of acute coronary syndrome especially in middle-aged women.

**Aim:** Suspect the diagnosis of spontaneous coronary artery dissection in case of acute chest pain in a youngwoman, explain its physiopathology, diagnostic means, therapeutic modalities and the means of surveillance.

**Case presentation:** we report the case of a 36-year-old woman without cardiovascular risk factors or thromboembolism who consults for chest painwithacute anterolateral myocardial infarction. Coronary angiography has showed a spiral dissection line in the left common trunk from its ostium to its bifurcation and a circumflex artery occluded from its ostium. She was treated by optimal medical treatment and a close monitoring by a multislice computed tomography (MSCT) and transthoracic echocardiography has been planned. A second coronarography was made in front of recurrence of chest pain having concluded the disappearance of the dissection line and a re-permeabilization of the circumflex artery.

**Conclusion:** SCAD should always be suspected in young women with myocardial infarction in electrocardiogram. The diagnosis is often confirmed by coronary angiography but new and more developed diagnostic methods appear such as intravascular imaging modalities (IVUS and OCT). Three therapeutic modalities are available: medical therapy, percutaneous coronary artery intervention, and surgery.

### Keywords

Spontaneous-coronary artery dissection-myocardial infarction-case report

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## INTRODUCTION

SCAD is a rare and often under diagnosed condition. Its prevalence is less than 3% (1). It is responsible for 10% to 30% of myocardial infarction, ventricular arrhythmias and sudden death especially in young women undergoing hormonal modification (peripartum period, taking oestro progestative pill ) (2-3).

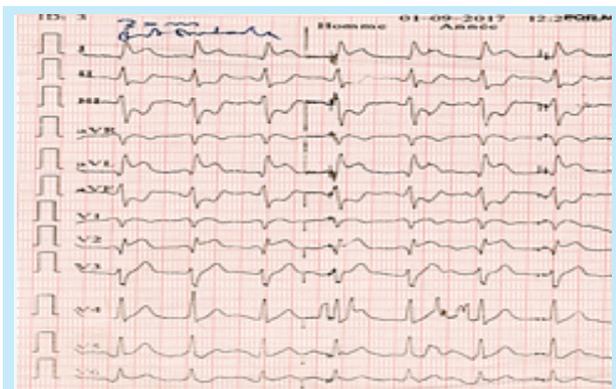
Its pathophysiology still poorly defined, but fibromuscular dysplasia seems to be the most pathological condition associated with this disease (4). Its diagnosis is based on coronary angiography, which sometimes seems insufficient to confirm the diagnosis, hence the use of other more sophisticated techniques such as endocoronary ultrasound (IVUS) and optical coherence tomography (OCT) that have made it possible to overcome limits of coronary angiography (5).

## OBSERVATION

A 36-year-old woman, mother of two healthy children, without cardiovascular risk factors, no particular gynecologic history, and no means of contraception, presented to the emergency department 30 minutes after the onset of chest pain occurring during a moderate effort and not relieved by rest. Patient reports the notion of similar episodes evolving since the last three days occurring at the effort and spontaneously resolved to stop it. Hemodynamic status of

patient on admission was stable with blood pressure at 100/60 mmHg and heart rate at 88 beats per minute.

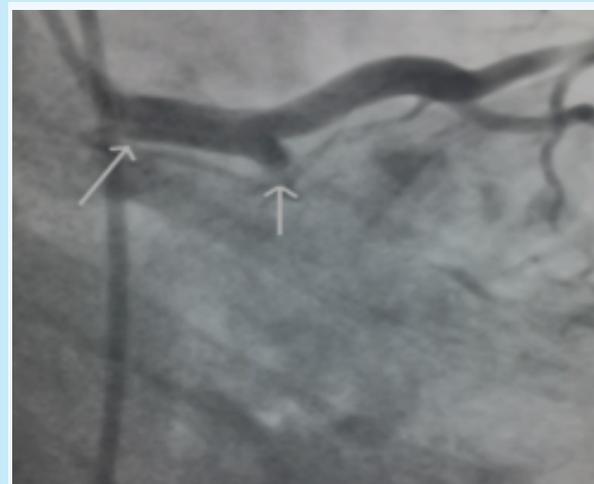
On electrocardiogram, there is an ST segment elevation from V1 to V6 and DI-AVL (Figure 1).



**Figure 1 :** Electrocardiogram at admission showing an ST segment elevation from V1 to V6 and DI-AVL.

Diagnosis of acute coronary syndrome with ST segment elevation was retained. In absence of contraindication to thrombolysis, the patient was successfully thrombolysed (complete pain sedation and total ST segment elevation regression).

Coronarography was made at H24 of pain objectified a left common trunk long of large caliber seat of a line of spiral dissection since its ostium until its bifurcation with a circumflex artery totally occluded since its ostium. Rest of the coronary network was healthy (Figure 2).



**Figure 2:** coronarography showing a spiral dissection line in the left common trunk from its ostium to its bifurcation and a circumflex artery occluded at its origin.

Given hemodynamic stability and absence of cardiac surgery center available nearby we opted for optimal medical treatment. Multislice computed tomography (MSCT) as well as Systolic function of the left ventricle, for dissection control, was monitored every six months.

Dual antiplatelet therapy was discontinued at six months following a duodenal ulcer responsible for anemia.

Control coronarography made after the second MSCT revealed the complete disappearance of the TCG dissection line and a permeabilization of the circumflex artery (Figure 3).



**Figure 3:** control coronarography showing the disappearance of the dissection line of the left common trunk and the permeabilization of the circumflex artery.

## DISCUSSION

SCAD is defined as a tear of the intima and the formation of two channels separated by the intimal flap. Ischemia and infarction occur when the false channel compresses the true channel (6). It is more common in women than in men (70% of cases), especially young women (7). Its clinical presentation varies from unstable angina to shock and sudden death (3). Its pathophysiology is still poorly defined but some conditions seem to be predisposing factors such as fibro-muscular dysplasia, chronic inflammatory diseases, connective tissue abnormalities (Ehlers-Danlos, Marfan syndrome), peripartum period, some medications such

as estrogen-progestins, stress, and intense physical activity, but sometimes SCAD is idiopathic with no obvious cause (2,5,8).

Diagnosis of SCAD is based on coronary angiography, which is sometimes insufficient to confirm diagnosis, hence the use of other more sensitive exploration techniques, in particular

endovascular imaging (2). Intravascular ultrasound (IVUS) and optical coherence tomography (OCT) are two invasive coronary imaging techniques that seem irreplaceable (5). They allow an accurate study of the coronary artery wall: a dissection appears as contrast media within two layers separated by an intimal flap with delayed clearance of contrast within the false lumen (9).

IVUS makes it possible to clearly visualize true and false channel and to appreciate possible extension of the dissection but intimal tear is often unidentified (4).

More recently, advent of OCT makes it possible to overcome limits of IVUS by allowing a greater spatial resolution. OCT is used to perceive the intimal portal of entry, to study the dissecting segment over its entire length and to appreciate extension of the intra-mural

hematoma (4). It also has indication when revascularization and stent placement is done. OCT allows per procedure to verify that catheter guide is correctly in the true channel, it gives idea on the length of stent needed and check in the end procedure its good positioning (4).

Non invasive imaging, in particular MSCT, has also its indications in SCAD. In fact, it has shown its usefulness in diagnosis but especially in the follow-up of patients with SCAD. It allows to visualize dissection line of arterial wall and presence of possible intra-mural

hematoma when lesion is proximal touching a large vessel, but MSCT finds its limits when dissection touches distal artery (2,4).

Therapeutic strategy essentially depends on clinical presentation of patient, in particular his hemodynamic state and extension of the dissection line (2).

Three therapeutic strategies are possible: medical treatment combining dual antiplatelet therapy and beta-blockers, transcatheter angioplasty and coronary bypass. The superiority of one of these three methods compared to the other one is not yet proven (2,4).

Thrombolytic agents are discouraged or even contraindicated in the context of SCAD, but sometimes when primary angioplasty is not possible and diagnosis of SCAD is still uncertain

thrombolysis may be a therapeutic alternative (2,4). Stable patients with limited dissections usually have a favorable long-term outcome and are candidates for conservative medical management (10).

After first episode of SCAD, risk of recurrence still exists, hence the need for close surveillance of these patients (2). Computed tomographic angiography may be considered to assess for healing of left main or large-vessel SCAD (>2.5 mm) instead of coronary angiography.

## CONCLUSION

spontaneous dissection of the coronary arteries is a rare

cause, but to think about it in young

woman with myocardial infarction; in a hemodynamically stable patient spontaneous healing can be seen under medical treatment alone.

Conflict of interest statement:

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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