

CASE REPORT

Spontaneous Dissection Of Left Anterior Descending Coronary Artery: Case Report

Cybelle Nunes Leão,¹ Marília Medeiros Vitório Machareth,¹ Pedro Henrique D'avila Costa Ribeiro,² Bruno dos Santos Farnetano,¹ Isaac Nilton Fernandes Oliveira,¹ Rafael Américo Damaceno¹

Hospital Santa Isabel,¹ Ubá, MG - Brazil

Faculdade Governador Ozanam Coelho,² Ubá, MG - Brazil

Introduction

Spontaneous coronary artery dissection (SCAD) is a rare cause of acute coronary syndrome (ACS).¹⁻⁵ It usually affects young women with no risk factors for coronary disease.^{3,5-8}

The real incidence of this disease in the population in general is unknown.^{1,3-6} However, as has been observed in more recent studies, the prevalence of SCAD has increased due to the growth in the use of coronary angiography (from 0.2% to 4%).⁵

Because it is a poorly studied disease, its etiology remains little known and, therefore, the prognosis and therapeutic approach are still uncertain.^{1,6,7} The percutaneous coronary intervention, surgical myocardial revascularization and clinical treatment are therapeutic options.^{3,5,8}

Case Report

A 26-year-old female, with no cardiovascular risk factors (arterial hypertension, diabetes mellitus, dyslipidemia, smoking and alcoholism) or other relevant pathological antecedents, under use of oral contraceptives only, woke up due to oppressive precordial pain associated with diaphoresis and dyspnea.

After seeking medical attention, she was admitted to an emergency care unit in her hometown 18 hours after the beginning of the clinical picture. The electrocardiogram showed ST elevation in leads V1 and V2 and ST-segment depression in leads DII, DIII and aVF.

Keywords

Acute Coronary Syndrome; Cardiac Catheterization; Coronary Artery Disease.

After administration of acetylsalicylic acid (ASA) 200 mg, she was referred to a referral hospital. Afterwards, the patient was hemodynamically stable, with sinus cardiac rhythm, eupneic, normotensive and with decreased pain. A coronary angiography was carried out 24 hours after the beginning of the symptoms and revealed dissection from the ostium to the proximal third of the ADA, with 90% obstruction and intramural thrombus (Figure 1), in addition to left ventricular anteroapical akinesia. The other coronary arteries showed no obstructive lesions.

Because the patient was hemodynamically stable and had no precordial pain, a non-interventionist strategy was chosen through clinical treatment of SCAD. A double antiplatelet therapy was started, with clopidogrel (loading dose of 300 mg followed by 75 mg/day maintenance dose) and ASA (loading dose of 200 mg and 100 mg/day maintenance dose), in addition to full anticoagulation with enoxaparin (2mg/kg/day divided into 2 doses per day). After 8 days of treatment, an intravascular ultrasonography (IVUS) and a new coronary angiography were performed, confirming the finding of anterior descending CAD and significantly improved artery stenosis with 50% blockage in the proximal part. The exams did not evidentiate aortic arch disease.

The IVUS confirmed the finding of anterior descending coronary artery dissection and showed the presence of intramural hematoma with a thrombosed false lumen (Figure 2). Minimum lumen area of 5.5mm².

The patient was discharged after 12 days from the beginning of the symptoms. She was asymptomatic and the markers of myocardial necrosis were normal. She was instructed to maintain the use of ASA and clopidogrel and scheduled a new imaging examination (coronary angiography or coronary angiotomography) for six months after the acute event.

Mailing Address: Cybelle Nunes Leão

Hospital Santa Isabel - Rua Frei Cornélio, 200. Postal Code: 36500-000, Laurindo de Castro, Ubá, Minas Gerais - Brazil.

E-mail: cynunesleao@gmail.com

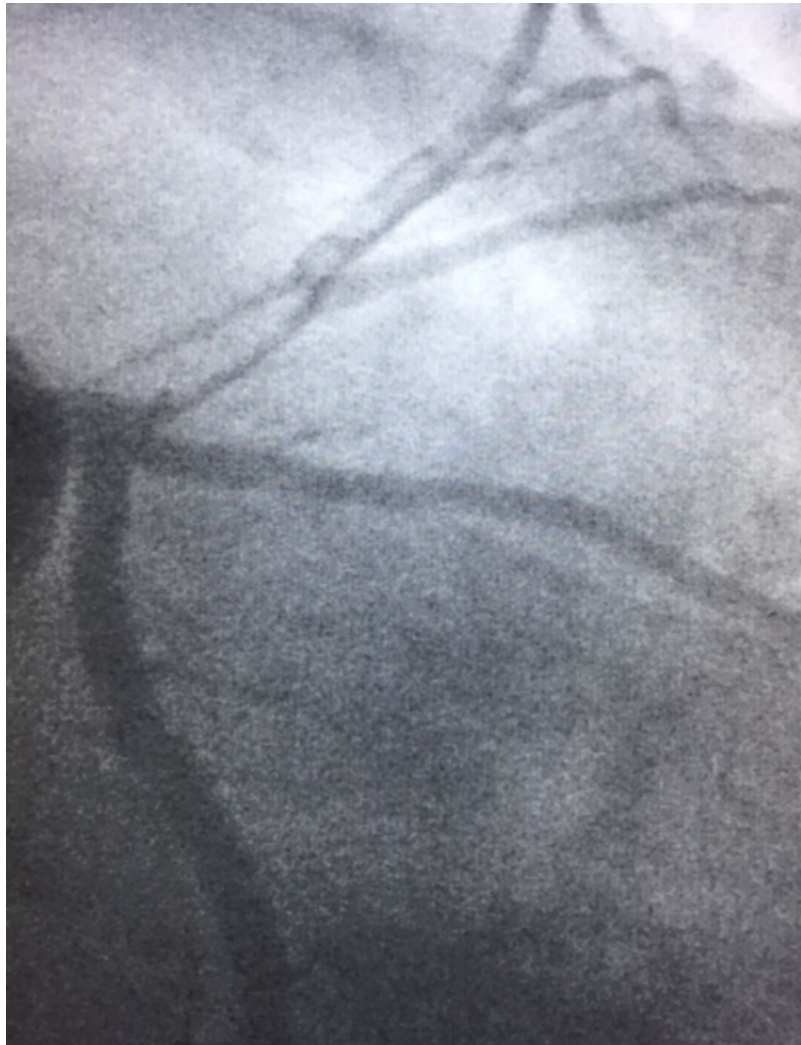


Figure 1 - Left coronary angiography in the right anterior oblique projection with caudal angulation demonstrates a 90% stenosis of the ostium and a negative image suggestive of a thrombus in the proximal third of the artery.

Discussion

The SCAD is a rare manifestation, which may present with all the clinical symptoms of ACS, including sudden death.⁵⁻⁷ In patients with SCAD, in addition to the symptoms of ACS, in up to 50% of cases, the ECG shows ST elevation and significantly elevated troponin.² However, due to the rarity of this disease, it is usually forgotten as a differential diagnosis in ACS and, in most cases (70%), the diagnosis is made by necropsy, in such a way that its real incidence is underestimated.^{1,3,4,9}

There is a marked predominance in women, with a proportion of 3 to 1 compared to men. About one-third of cases occur during pregnancy or in the puerperal

period.⁷ However, Yip and Saw¹ suggest, in their study, these data might have been biased in older studies, since they present selective case reports of high morbidity and mortality.

In women, dissections usually occur when they are young, with a mean age of 40 years, with no risk factors for ACS, and mostly affect the left coronary artery.^{3,5,7,9} In men, the impairment occurs at a higher age range, sometimes associated with the presence of risk factors for coronary artery disease, with a predominant involvement of the right coronary artery.⁷ In general, the anterior descending artery is affected in up to 75% of cases.^{3,5,7,9}

Because it is a rare disease, the best treatment approach for SCAD has not been defined yet, since

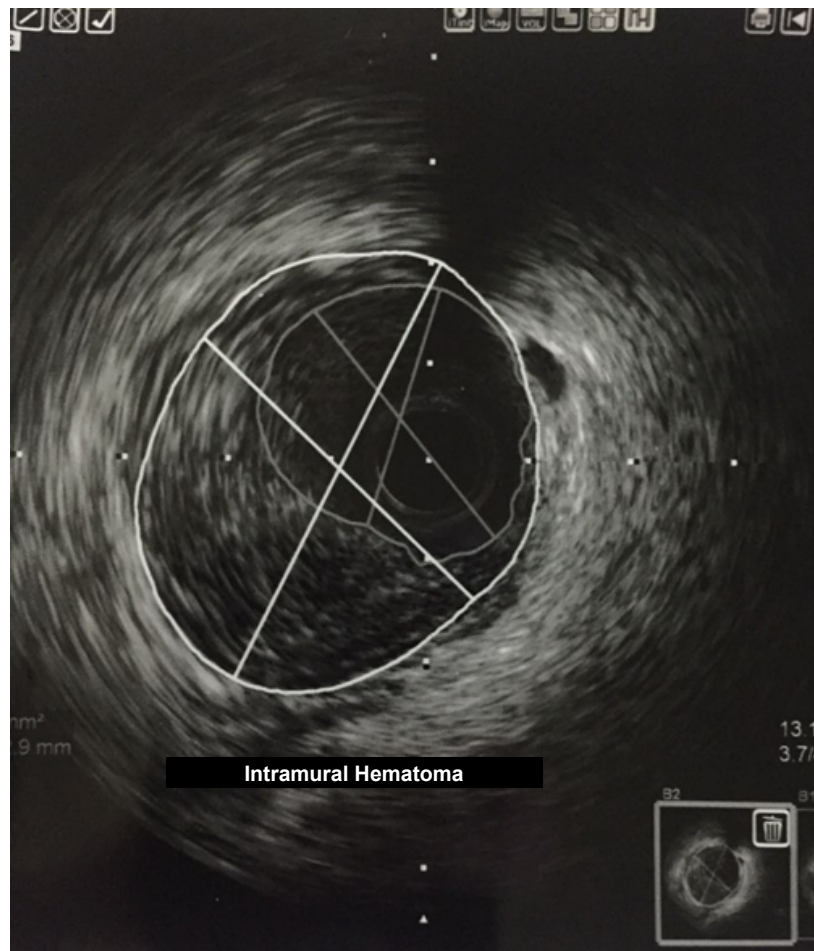


Figure 2 - Intravascular ultrasonography of the proximal third of the anterior descending artery, performed 8 days after the first coronary angiography, showing intramural hematoma with thrombi at 4-11h.

data on different therapeutic strategies are scarce and the decisions remain largely empirical.⁶⁻⁸ Intracoronary imaging techniques, such as the IVUS and optical coherence tomography, are crucial to establish the diagnosis, therapeutic decisions and prognosis.^{3,5,9} Through retrospective studies, it is possible to observe that adequate treatment varies depending on the clinical severity of the disease, considering the persistence or the relief of the symptoms of ischemia, the patient's hemodynamic condition, the myocardium area at risk, the extension of the dissection, the number of arteries involved and the distal coronary flow.^{4,7,9}

Saw et al.,³ in a revision study, designed an algorithm for the management of patients with SCAD, presenting the following basic concepts: 1) The conservative therapy is performed in stable patients, who are monitored in hospital

from 3 to 5 days; 2) The revascularization, including coronary percutaneous intervention, if possible, should be considered for those with high-risk characteristics; 3) The use of intra-aortic balloon, oxygenation by extracorporeal membrane, left ventricular assist device or implantable cardioverter defibrillators should be considered in hemodynamically unstable patients.

In spite of its rarity, SCAD is an important cause of ACS and should always be considered in the differential diagnosis, particularly when it occurs in young healthy women. Intracoronary imaging can be used both to confirm the diagnosis and to guide the treatment decisions and, in combination with data provided by previous studies, help to define a more adequate therapeutic strategy, according to each type of disease presentation.

Author contributions

Conception and design of the research: Farnetano BS. Acquisition of data: Leão CN, Machareth MMV, Ribeiro PHDC, Damaceno RA. Analysis and interpretation of the data: Oliveira INF, Damaceno RA. Writing of the manuscript: Leão CN, Machareth MMV, Ribeiro PHDC, Oliveira INF. Critical revision of the manuscript for intellectual content: Leão CN, Ribeiro PHDC, Farnetano BS, Oliveira INF.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Sources of Funding

There were no external funding sources for this study.

Study Association

This study is not associated with any thesis or dissertation work.

References

1. Yip A, Saw J. Spontaneous coronary artery dissection - A review. *Cardiovasc Diagn Ther.* 2015;5(1):37-48.
2. Saw J. Spontaneous coronary artery dissection. *Can J Cardiol.* 2013;29(9):1027-33.
3. Saw J, Mancini GBJ, Humphries KH. Contemporary review on spontaneous coronary artery dissection. *J Am Coll Cardiol.* 2016;68(3):297-312.
4. Manhaes EB, Gomes WF, Bezerra CG, Horta PE, Gama MN, Cesar LA, et al. Spontaneous Coronary Artery Dissection: Therapeutic Approach and Outcomes of a Consecutive Series of Cases. *Rev Bras Cardiol Invasiva.* 2014;22(1):32-5.
5. Pepe M, Cecere A, Napodano M, Ciccone MM, Bartolomucci F, Navarese EP, et al. How to approach a spontaneous coronary artery dissection: an up-to-date. *Interv Cardiol J.* 2017;3(1.3):1-9.
6. Andrade HA, Feijó LA, Lavall GC, Tedeschi AL. Acute myocardial infarction as presentation of spontaneous coronary artery dissection. *Rev Bras Cardiol.* 2010;23(2):251-4.
7. Barbosa RR, Rinaldi FS, Costa Jr JR, Feres F, Abizaid A, Sousa AG, et al. Acute myocardial infarction due to spontaneous coronary artery dissection: a series of five cases. *Rev Bras Cardiol Invasiva.* 2013;21(2):193-8.
8. Alfonso F, Bastante T, Cuesta J, Rodríguez D, Benedicto A, Rivero F. Spontaneous coronary artery dissection: novel insights on diagnosis and management. *Cardiovasc Diagn Ther.* 2015;5(2):133-40.
9. Albuquerque CE, Souza AL, Martins WA, Nani E. Dissecção coronariana espontânea. *Rev Bras Cardiol.* 2014;27(5):370-3.

