

Acute Myocardial Infarction in A Middle-Aged Female Caused by Severely Diffuse Spontaneous Intramural Hematoma of Left Coronary Artery

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Intracoronary hematoma; Acute myocardial infarction; Intravascular ultrasound

1. Abstract

Spontaneous intracoronary hematoma could cause acute coronary syndrome. We presented a patient with acute inferior and posterior myocardial infarction caused by spontaneous severely diffuse spontaneous intramural hematoma of left coronary artery.

2. Introduction

Spontaneous coronary intramural hematoma is a rare manifestation of Acute Coronary Syndrome (ACS), and its pathogenesis is still unclear. The more accepted view is that the nourishing vessels of the vascular wall membrane rupture, and the hematoma accumulated between the middle and outer membranes leading to acute occlusion of the coronary artery, and a few patients will suffer from Acute Myocardial Infarction (AMI) and sudden cardiac death [1, 2]. Coronary intramural hematoma is more common in women [3].

3. Case Report

A 46-year-old hypertensive female complained of having a tight tightness for three days after mood swings [4]. The results of auxiliary examinations showed significantly elevated serum troponin diagnostic (71.56ng/ml) and pathological Q wave and ST segment elevation at inferior and anterior sidewall electrocardiogram leads (Figure 1), indicating the diagnosis of acute ST-Segment Elevation Myocardial Infarction(STEMI). Transthoracic Echocardiogram (TTE) indicated the mobility of the inferior and posterior wall of left ventricular slightly weakened and left ventricular ejection fraction remained normal (69%). The patient had no family history

of cardiovascular disease and autoimmune disease. The study was approved by the Ethical Review Committee of the Second Affiliated Hospital of Nanchang University, and written informed consent was obtained from the patient.

After given Double-Antiplatelet Therapy (DAPT, aspirin 100 mg once daily, ticagrelor 90 mg twice daily), metoprolol sustained release tablets (23.75 mg once daily) and lipitor (20mg, 1 time per night), Coronary Angiography (CAG) showed no obvious stenosis in the left main trunk; 90% diffuse stenosis in the proximal middle segment, 30% stenosis in the middle segment, 80% stenosis in the distal segment of the Left Anterior Descending artery (LAD); diffuse lesion in the middle distal segment of the circumflex branch(LCX) with 80-90% stenosis in many places; no obvious stenosis in the right crown artery. The stenosis was not relieved after 2ml nitroglycerin injection (100ug/ml). Then Intravascular UltraSound (IVUS) examination showed that the target lesions of the LAD and LCX were all intramural hematoma, which extended to the left main trunk, and there were no plaque sign in the left coronary artery (Figure 2 and 3).

In consideration of the hemodynamic stability, the patient was consulted for drug conservative treatment with strict follow-up. Ticagrelor and lipitor were discontinued postoperatively, and aspirin monoclonal anti-platelets and metoprolol sustained release tablets were given daily. At follow-up of two years, the patient was generally in good condition with no chest tightness, and refused to CAG and IVUS examination.

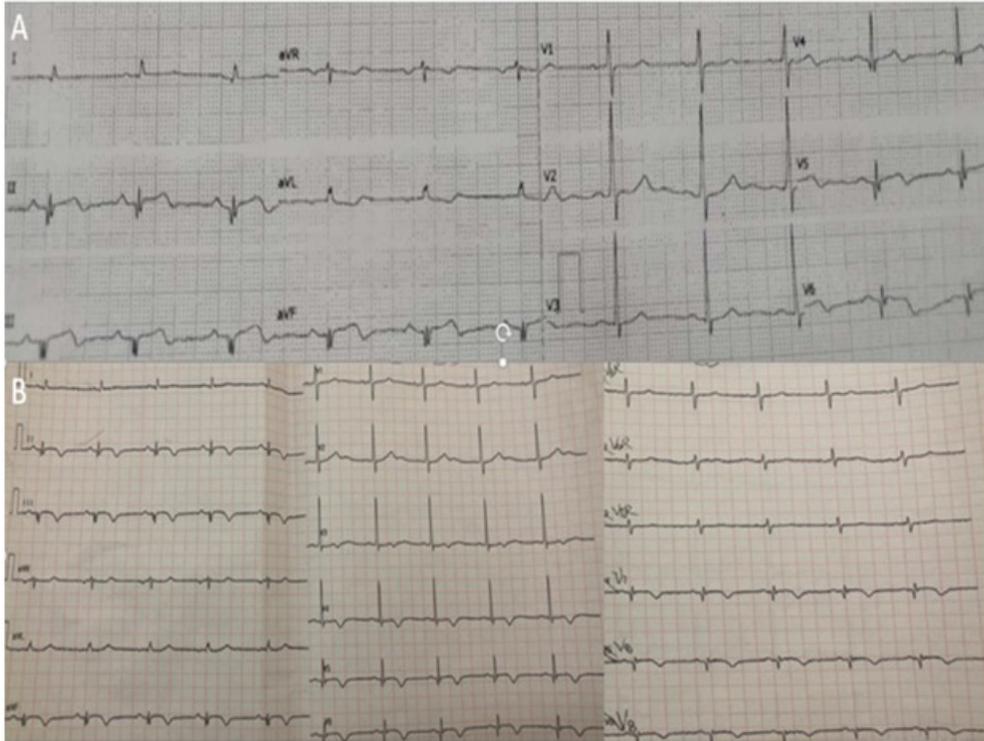


Figure 1: (A) showed the electrocardiogram of acute myocardial infarction: pathological Q wave and ST segment elevation in the inferior leads (II, III, aVF) and anterior sidewall leads (V4-6). (B) showed Post-hospital subacute myocardial infarction electrocardiogram: pathological Q wave formation and T wave inversion in the inferior and posterior wall leads (II, III, aVF, V7-9) and anterior sidewall leads (V4-6).

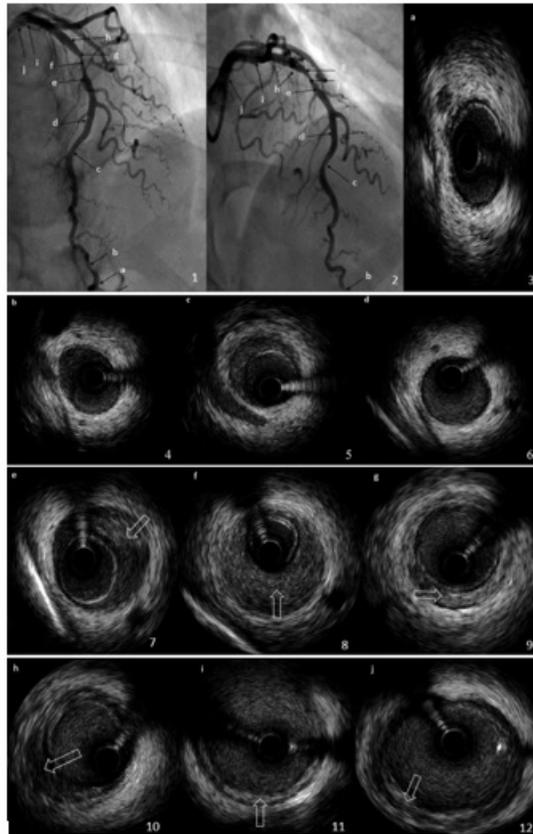


Figure 2: The left main-anterior descending coronary angiography results (1, 2) and intramural hematoma IVUS series horizontal axis view (3-12): white arrows which pointed to the ring or crescent shaped, slightly stronger than or equal to blood spots echoes indicated a hematoma corresponding to the segment of the diseased vessel. There was no dissection and plaque sign in the IVUS (Vascular segments a and d were normal vessels without intramural hematoma and atherosclerosis).

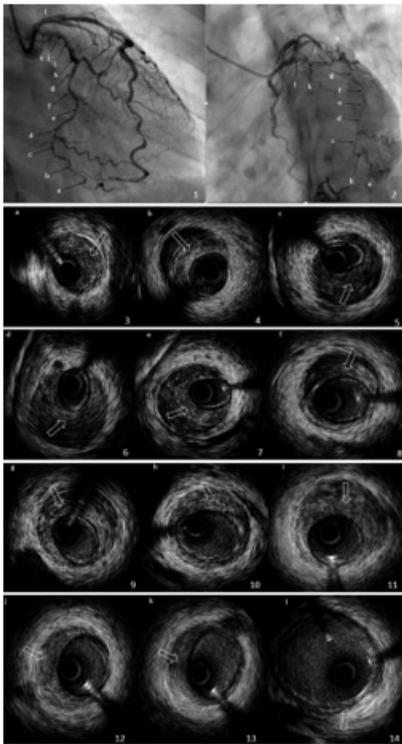


Figure 3: The circumflex coronary angiography results (1, 2) and intramural hematoma IVUS series horizontal axis view (3-14) white arrows which pointed to the ring or crescent shaped, slightly stronger than or equal to blood spots echoes indicated a hematoma corresponding to the segment of the diseased vessel. There was no dissection and plaque sign in the IVUS.

4. Discussion

The detection rate of intracoronary hematoma by CAG is only 0.1%~1.1% [5]. Vascular stenosis is non-specificity, varying in degrees and lengths, characterized by smooth lumen [6]. This diagnosis should be confirmed by intracavitary imaging technology, such as IVUS and Optical Coherence Tomography (OCT) which can clearly assess the spatial orientation and identify other atypical coronary diseases [5, 7]. In this case, CAG showed multiple stenosis of the LAD and a diffuse lesion of the LCX with smooth lumen stenosis. IVUS showed that all lesions were intramural hematomas, which extended to the left main trunk. Such a severely diffuse intramural hematoma is rare.

Given its rarity, there are no guidelines for management of intracoronary hematoma causing ACS. Medical management or interventional therapy should be taken into account according to the extent of the lesions and hemodynamics [5, 8]. As for the vessel stenosis can be significantly relieved after absorption of the intramural hematoma, Therefore, unless the patient has associated risk factors, persistent ischemic symptoms, hemodynamic instability, lesions involving the left main trunk, or poor coronary anterior blood flow, conservative management is generally recommended firstly [9]. IVUS and OCT can be used to accurately assess the severity of the lesion, the size of the reference vessel, and optimize interventional therapy, such as confirming the location of the guide wire in the true lumen, assure complete lesion coverage, fully ex-

pansion and well apposition during stent placement [10]. In terms of prognosis, the survival rate of intracoronary hematoma is high in the acute phase, and the in-hospital mortality rate is less than 5% [8].

5. Conclusion

We presented a patient with acute inferior and posterior myocardial infarction caused by spontaneous severely diffuse spontaneous intramural hematoma of left coronary artery. It is useful to diagnosis the spontaneous intracoronary hematoma by means of IVUS and OCT, especially for smooth lumen lesions.

6. Ethics Approval and Consent To Participate

The study was approved by the Ethical Review Committee of the Second Affiliated Hospital of Nanchang University, and written informed consent was obtained from the patient.

Reference

1. Meng PN, Wu Q, Xia Y, Yin DL, You W, Wu ZM, et al. Characteristics of acute myocardial infarction caused by spontaneous coronary artery dissection in young female patients. *Zhonghua Xin Xue Guan Bing Za Zhi*. 2018; 46: 536-42.
2. Bochenek T, Lelek M, Mizia-Steć K. Anterior wall myocardial infarction in a young man caused by spontaneous dissection and hematoma of coronary artery. *Interv Med Appl Sci*. 2019; 11: 125-7.
3. da Silva AC, de Paula JE, Mozer GW, Toledo LF, Soares RL, Albertal M. Simultaneous dissection and intramural hematoma of left anterior descending and circumflex coronary arteries after blunt chest trauma. *Int J Cardiol*. 2012; 155: e34-6.
4. Saw J, Aymong E, Sedlak T, Buller CE, Starovoytov A, Ricci D, et al. Spontaneous coronary artery dissection: association with predisposing arteriopathies and precipitating stressors and cardiovascular outcomes. *Circ Cardiovasc Interv*. 2014; 7: 645-55.
5. Alfonso F, Bastante T, García-Guimaraes M, Pozo E, Cuesta J, Rivero F, et al. Spontaneous coronary artery dissection: new insights into diagnosis and treatment. *Coron Artery Dis*. 2016; 27: 696-706.
6. Saw J, Mancini GB, Humphries K, Fung A, Boone R, Starovoytov A, et al. Angiographic appearance of spontaneous coronary artery dissection with intramural hematoma proven on intracoronary imaging. *Catheter Cardiovasc Interv*. 2016; 87: E54-61.
7. Raja Y, Trevelyan J, Doshi SN. Intramural hemotoma presenting as acute coronary syndrome: the importance of intravascular ultrasound. *Cardiol J*. 2012; 19: 323-5.
8. Ingrassia J, Diver D, Vashist A. Update in Spontaneous Coronary Artery Dissection. *J Clin Med*. 2018; 7: 228.
9. Al Emam AR, Almomani A, Gilani SA, Khalife WI. Spontaneous Coronary Artery Dissection: One Disease, Variable Presentations, and Different Management Approaches. *Int J Angiol*. 2016; 25: 139-47.
10. Arrivi A, Bazzucchi M, De Paolis M, Placanica A, Bock C, Milici C, et al. Spontaneous-idiopathic left anterior descending artery dissection: is watchful waiting better than immediate stenting? *Case Rep Vasc Med*. 2013; 2013: 639384.