



# Chest pain in a middle-aged woman

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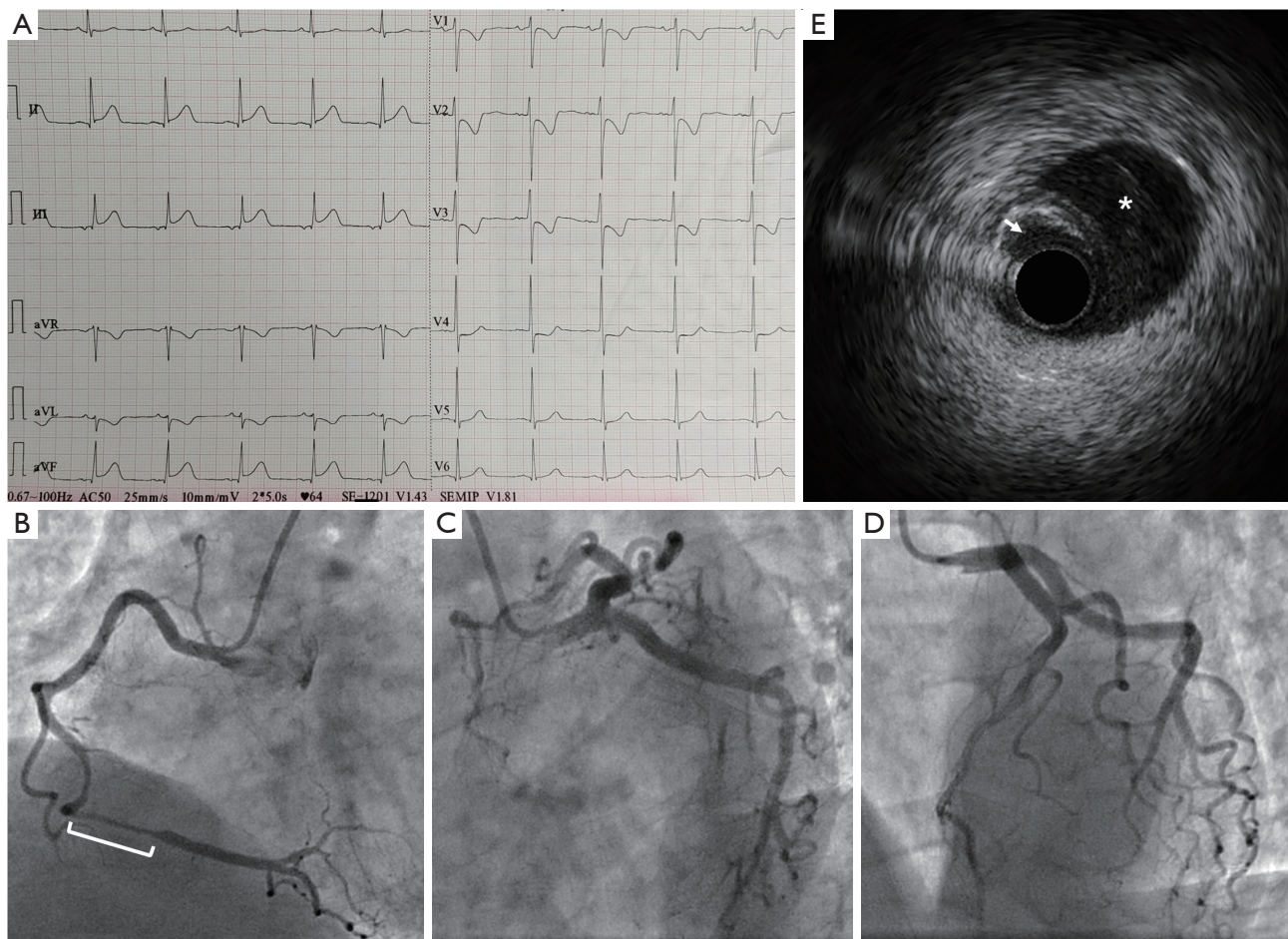
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A previously healthy 55-year-old female presented at our emergency department with 60 minutes of squeezing chest pain. The electrocardiogram (ECG) upon admission showed sinus rhythm with ST-segment elevation in leads II, III, and aVF, along with prominent ST depression in leads V1 to V3 (*Figure 1A*). A diagnosis of acute inferior (with posterior involved) myocardial infarction (MI) was initially made. Following the administration of 300 mg aspirin and 180 mg ticagrelor, emergent coronary angiography revealed a long, diffuse, and smooth stenosis located in the mid-to-distal segment of the right coronary artery with preserved coronary flow (*Figure 1B*). Of note, the stenosis did not respond to intracoronary nitroglycerin. Conversely, no evidence of stenosis was observed in the left coronary arteries (*Figure 1C,1D*). Considering the patient was a middle-aged woman without conventional cardiovascular risk factors, spontaneous coronary artery dissection (SCAD) rather than traditional atherosclerosis with plaque rupture was considered. The cardiovascular interventionalist proceeded with intravascular ultrasound (IVUS), which confirmed the presence of an intramural hematoma (IMH; asterisk) compressing the true lumen (arrowhead) (*Figure 1E*). Based on the above-mentioned findings, a diagnosis of SCAD was established. Given the patient's relieved symptoms, stable hemodynamics, distal lesion, and preserved coronary flow, a conservative management

approach was adopted (lifelong 100 mg/day aspirin and 1-month 75 mg/day clopidogrel). After discharge, the patient remained asymptomatic but declined repeated coronary angiography or computed tomography coronary angiography during the 12-month follow-up.

SCAD is a significant contributor to MI among young to middle-aged women, yet it is often underdiagnosed and not fully comprehended. This case underscores the importance of considering SCAD in such demographics, especially in the absence of traditional coronary heart disease risk factors, when presenting with clinical symptoms resembling acute coronary syndrome (ACS). In most cases of SCAD where angiographic diagnosis is feasible and conservative management is favored, coronary instrumentation for intracoronary imaging should be reserved primarily for instances of diagnostic uncertainty or when percutaneous coronary intervention (PCI) is deemed necessary. When imaging becomes necessary, focusing on assessing the most proximal segment of the hematoma might help minimize the risk of complications. This procedure helped us clarify the diagnosis of SCAD in our case. In line with the current expert consensus, patients without hemodynamic instability, persistent chest pain, ventricular arrhythmias, or cardiogenic shock, and those with lesions located distally, as in our patient, fall into the low-risk category. Typically, a conservative management strategy is preferred for this cohort.

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**Figure 1** Images of ECG, coronary angiography and IVUS of the patient at presentation. (A) ECG upon admission showing ST-segment elevation in leads II, III, and aVF, along with prominent ST depression in leads V1 to V3. (B) Coronary angiography revealing a long, diffuse, and smooth stenosis in the mid-to-distal segment of right coronary artery (bracket). (C,D) There are no stenoses observed in the left coronary arteries. (E) IVUS showing an IMH (asterisk) compressing the true lumen (arrowhead). The figure is published with the patient's consent. ECG, electrocardiogram; IVUS, intravascular ultrasound; IMH, intramural hematoma.

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have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

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