

# Acute Coronary Syndrome During Pregnancy: A Case Report and Literature Review

## Gebelik Sırasında Akut Koroner Sendrom: Olgu Sunumu ve Literatür Taraması

Sabiye YILMAZ, Salih SAHINKUS, Harun KILIC, Huseyin GUNDUZ, Ramazan AKDEMİR

Department of Cardiology, Sakarya University Training and Research Hospital, Sakarya

### SUMMARY

A 32-year-old multiparous woman who presented with chest pain at seven weeks gestation was admitted to our hospital 35 minutes after the onset of symptoms. Sudden cardiac arrest developed while the patient was waiting in the triage room. Cardiopulmonary resuscitation was performed, and the patient was immediately intubated. Electrocardiography revealed an inferior myocardial infarction. The patient underwent coronary angiography, which revealed slow coronary flow of the circumflex and left anterior descending coronary arteries. For treatment, the combination of aspirin with clopidogrel and unfractionated heparin was initiated. She had previously had three healthy children and hadn't had any problems during her previous pregnancies. She had a history of family and smoking, but no history of other coronary risk factors such as diabetes mellitus, hypertension, or dyslipidemia. She was discharged home on day five after admission with clopidogrel, aspirin and a beta-blocker with close outpatient follow-up. Elective abortion was planned for two weeks after the myocardial infarction.

**Key words:** Coronary thrombosis; myocardial infarction; pregnancy.

### ÖZET

Otuz iki yaşında yedi haftalık multipar gebe bir kadın, acil servimize 35 dakika önce başlayan göğüs ağrısı şikayeti ile başvurdu. Hasta bekleme odasında beklerken ani kardiyak arrest gelişti. Kardiyopulmoner resüsitasyon yapıldı hasta hemen entübe edildi. Elektrokardiyografide inferior miyokart enfaktüsü saptandı. Hastaya koroner anjiyografi yapıldı ve sirkumfleks arter ile sol ön inen arterde yavaş akım izlendi. Medikal tedavide asetilsalisilik asit ve klopidoğrel kombinasyonu ile unfraksiyone heparin başlandı. Hastamız üç tane sağlıklı çocuğa sahipti ve önceki gebeliklerinde herhangi bir problem yaşamamıştı. Risk faktörlerinden aile öyküsü ve sigara içiciliği mevcuttu ancak diyabetes mellitus, hipertansiyon, dislipidemi yoktu. Çıkış tedavisi asetilsalisilik asit, klopidoğrel ve beta bloker olarak düzenlendi ve yatışının beşinci gününde sıkı takip önerildi. Miyokart enfaktüsünden iki hafta sonra elektif abortus planlandı.

**Anahtar sözcükler:** Koroner trombüs; miyokart enfaktüsü; gebelik.

### Introduction

Acute myocardial infarction (AMI) during pregnancy is rare but serious condition that it is a cause of maternal mortality and fetal loss. Pregnancy has been shown to increase the risk of AMI, which has been reported to occur in 3-10 cases per 100,000 deliveries.<sup>[1-4]</sup> With the rise in maternal age and the increasing number of high-risk women who become pregnant, the prevalence of pregnancy-related acute coronary syndrome (ACS) is expected to increase. Pregnancy leads to

excessive hypercoagulability by increasing platelet adhesion and decreasing fibrinolysis; these hemostatic changes lead to an increased risk of thromboembolic events.<sup>[3-5]</sup> It is strongly related to the traditional risk factors of coronary heart disease, including diabetes mellitus, hypertension, dyslipidemia, family history of coronary artery disease and smoking. Additionally, other conditions that contribute to ACS are preeclampsia, eclampsia, thrombophilia, postpartum infections, severe postpartum hemorrhage, and spontaneous

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**Correspondence:** Dr. Sabiye Yılmaz, Korucuk Baytur Sitesi, Orkide 1, Daire 6, Sakarya, Turkey.

**e-mail:** ssevincdr@gmail.com

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coronary artery dissections.<sup>[4]</sup> Maternal mortality after ACS is estimated to be 5-10% and is highest during the peripartum period. Survival has improved with primary percutaneous coronary intervention (PCI).<sup>[2-4]</sup>

This article accompanies pregnancy in patients with ST elevation myocardial infarction (STEMI), and we consider a general approach to treatment.

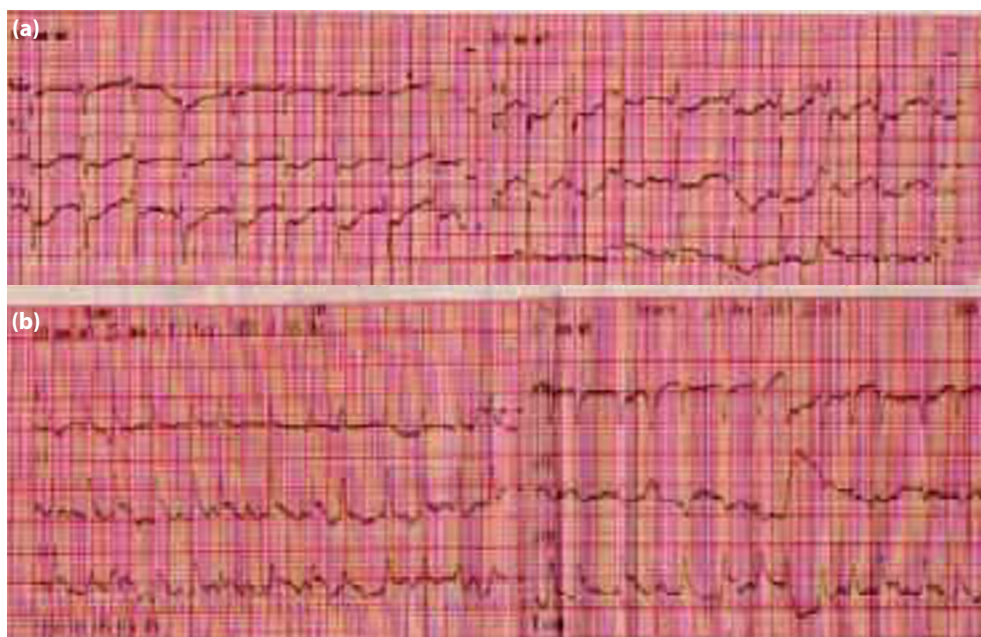
## Case Report

A 32-year-old multiparous woman at seven weeks gestation presented to the Emergency Department (ED) with a sudden onset of chest pain within the previous 35 minutes. She had three healthy children and had no problems during previous pregnancies. She had a family history of coronary artery disease but no history of other coronary risk factors such as diabetes mellitus, hypertension, dyslipidemia or smoking. Sudden cardiac arrest developed while she was waiting in the triage room. Cardiopulmonary resuscitation (CPR) was performed and patient was immediately intubated. Ventricular fibrillation developed during CPR and defibrillation was performed. Clinical examination showed she had flexor response to painful stimuli and her pupillary light reflex was present. Her blood pressure was 90/55 mmHg with a pulse of 102 beats per minute, oxygen saturation of 96%, and normal heart sounds. There were ST elevations in leads DII, DIII, and aVF; conversely ST depression in leads V1-V4; and atrial fibrillation (AF) on electrocardiography (ECG) following CPR (Figure 1a, b). Portabilizer echocardiography was performed in the emergency department by cardiologists. The echocardi-

ogram demonstrated that the wall motions were severely reduced in the inferior and lateral regions, consistent with AMI, and the estimated ejection fraction of the left ventricle was 40%. With the diagnosis of an inferior STEMI, aspirin (300 mg) and clopidogrel (600 mg) were given in the ED. The patient was then referred for primary angioplasty, which was performed within 45 minutes. Catheterization was performed after shielding the patient's back and abdomen with lead aprons. Coronary angiography showed slow coronary flow of the circumflex (CX) and left anterior descending (LAD) coronary arteries. Right coronary artery was normal (Figure 2). The combination of aspirin (100 mg/day) with clopidogrel (75 mg/day for 2 weeks) and unfractionated heparin was initiated for medical treatment. Biochemistry tests [urea, creatinine, glucose, aspartate aminotransferase (AST), alanine aminotransferase (ALT)] were normal, except for mild leukocytosis. The serum levels of troponin peaked at 13 ng/ml.

We consulted an obstetrician regarding the safety of administering clopidogrel and the use of radiation after angiography, and both were consequently considered to be unsafe because organogenesis was not complete. She was discharged home on day five after admission with clopidogrel, aspirin and a beta-blocker with close outpatient follow-up. Elective abortion was planned for two weeks after the MI.

There was no prior history of connective tissue disease, vasculitis, impaired anticoagulant mechanism (protein C deficiency, protein S deficiency), or antiphospholipid antibody syndrome, which are associated with a thrombotic tendency. Birth control pills had never been used. Immunologic



**Figure 1. (a, b)** Atrial fibrillation (AF) and ST elevations in leads DII, DIII, and aVF; conversely ST depression in leads V1-V4 on electrocardiography (ECG) following CPR.

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