

## A Rare Case: Myocardial Infarction During Pregnancy

Nadir Bir Vaka: Gebelikte Miyokard Enfarktüsü

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**ABSTRACT**

Acute myocardial infarction (AMI) is rare during reproductive ages, but is three to four times more common in pregnant women than nonpregnant women. AMI during pregnancy is associated with high maternal and fetal mortality. We present a 22-year-old patient with 28 weeks pregnancy who was admitted to emergency department with chest pain and diagnosed with AMI in her follow-up.

**ÖZET**

Akut miyokard enfarktüsü (AMI) üreme çağında nadirdir, ancak hamile kadınlarda hamile olmayan kadınlara göre üç ila dört kat daha yaygındır. Hamilelik sırasında AMI, yüksek maternal ve fetal mortalite ile ilişkilidir. Acil servise göğüs ağrısı ile başvuran ve takibinde AMI tanısı alan 22 yaşındaki 28 haftalık gebeliği olan hastayı sunuyoruz.

**Keywords:**

Pregnancy  
Acute myocardial infarction  
Treatment

**Anahtar Kelimeler:**

Gebelik  
Akut Miyokard Enfarktüsü  
Tedavi

**INTRODUCTION**

Cardiac disease can be seen in pregnant women at a rate of 0.5 - 1% and is the biggest cause of death during pregnancy in developed countries (1). Acute myocardial infarction (AMI) is rare during reproductive ages, but is three to four times more common in pregnant women than non-pregnant women (1-6). AMI during pregnancy is reported to be 3 – 10 out of every 100.000 births (3,7,8), and it is associated with high maternal and fetal mortality (2-5,7,10-13). Pregnancy can lead to increased platelet adhesion and decreased fibrinolysis leading to hypercoagulopathy, and these changes in hemostasis may lead to an increase in thromboembolic events (7). We present a 22-year-old patient with 28 weeks pregnancy who was admitted to the emergency department with chest pain and diagnosed with AMI in her follow-up.

**CASE**

A 22-year-old primigravid patient with 28 weeks of gestation was admitted to the emergency department with sudden onset pressure-like chest pain radiating to left arm, and concurrent dyspnea. No additional diseases or conditions were mentioned in the medical history of the patient and family history was negative for any chronic illnesses or sudden deaths.

Her cardiac pace was rhythmic, there were no additional sound or murmur, peripheral pulses were clear, no pathological findings on other system examinations. Her vital signs were; arterial blood pressure: 110/70 mmHg on both upper extremities, pulse: 84 beats/min, oxygen saturation: 97%, body temperature: 36,9 ° C, respiratory

rate: 22/min. The electrocardiogram (ECG) showed ST segment elevation that did not exceed 1 mm in the aVF and DIII leads and ST segment depression that did not exceed 1 mm in the aVL lead on admission. Cardiology consultant evaluated the patient with echocardiography (ECHO), there were no pathological findings on her ECHO. Cardiology consultant considered early repolarisation, and suggested monitorization of cardiac parameters (Figure 1).

A single live fetus compatible with 28 weeks was observed in the obstetric ultrasonography (USG) of the patient. No pathology was found in terms of obstetrics. The laboratory values on admission were measured as Creatine Kinase (CK): 57 U/L (0-170), Creatine Kinase-MB (CK-MB): 22.3 U/L (0-25), Troponin-I: 0.01 ng/lt (0-0,04). There were no ECG changes during the patient's observation in the emergency room, but there were significant changes in terms of laboratory values taken at 8th hour as; CK: 365 U/L, CK-MB: 57.9 U/L, Troponin-I: 3.55 ng/mL. After cardiology consultation, inferior myocardial infarction was diagnosed and the patient was hospitalized for coronary angiography. The angiography was performed using lead shields to protect the fetus from radiation. The posterior descending limb of the right coronary artery was evaluated as 100% occluded. No pathological findings were found in other coronary arteries. On the third day of hospitalization, the patient had no symptoms and complaints, she was hemodynamically stable and cardiac parameters were regressing so she was discharged with Metoprolol and Acetylsalicylic acid prescription. The

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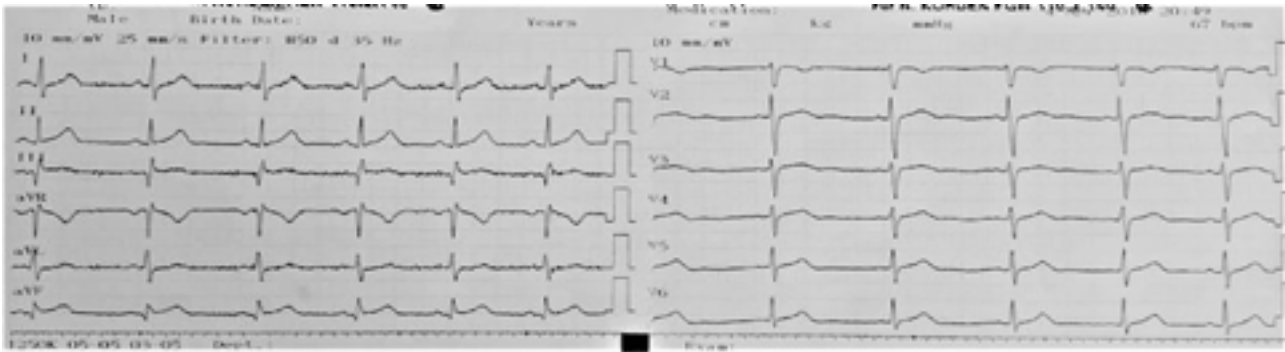
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**Figure 1:** The electrocardiogram (ECG) shows ST segment elevation that did not exceed 1 mm in the aVF and DIII leads and ST segment depression that did not exceed 1 mm in the aVL lead on admission.

pregnancy of the patient continued in a healthy manner and gave birth to a healthy baby.

#### DISCUSSION

Our case differs from the literature in some aspects. Almost all of the pregnant AMI cases in the literature are in the third trimester and over 33 years of age multigravida women (2,3,6,8,12). In our case, the patient is 22 years old, which is quite young compared to other cases in the literature. There are cases under 30 years of age but have underlying organic heart diseases (13). In addition to being young, our patient had no underlying diseases in her medical history. Infarcts seen in this period most commonly affect the left ventricular anterior wall (3,8,10,12). In our case, unlike the literature, there was an inferior wall infarction. Half of pregnant AMI cases have no risk factors identified (2).

Physiological changes of the pregnancy can be a risk factor for AMI alone and these changes can mask pathologic findings and lead to delayed diagnosis (1,2). Regardless of patients' age, who come to the emergency department with chest pain during pregnancy, the lethal diagnoses that can be caused by the physiology of pregnancy should be kept in mind and the follow-up period in the emergency department should be extended (1,12). For this reason, patients with chest pain in emergency departments should be monitored by serial ECG and laboratory tests. Despite being very young, our case was considered as high risk because of the typical chest pain, so the follow-up period was extended. Although there were no ECG changes at the

8th hour of the observation in the emergency department, the increase in cardiac parameters supported our diagnosis. As in pregnancy, the diagnosis of AMI should be confirmed by angiography, and the fetus should be protected from radiation exposure during the procedure (2,4,7). In our case, coronary angiography was performed by cardiology after covering the abdominal region of the mother with lead covering; AMI was confirmed and treated with pharmacological agents.

Acetylsalicylic acid and heparin, among the medications used in the emergency treatment of AMI, are considered safe to be used in pregnancy (12). Morphine sulfate could be used for pain control and coronary vasodilatation in pregnancy. Morphine rapidly passes through the placenta, because of that, respiratory depression could occur in the newborn if given immediately before birth (5). For this reason, if a patient that was given morphine is in labor, the delivery room should be informed. Morphine was not given to our patient.

#### CONCLUSION

As a result, pregnant and early postpartum patients admitting to the emergency department with chest pain should be carefully examined considering the physiology of pregnancy, even if the causes of lethal chest pain are excluded, observation period should be prolonged in terms of cardiological pathologies. The prolongation of the follow-up period will ensure that the rare pregnant AMI cases are not missed and maternal and fetal mortality may be reduced.

**Conflict of interest:** Authors declare no conflict of interest.

**Ethic:** Our case report is suitable with the principles of World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects" (amended in October 2013).

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## Phnx Med J. March 2022, Volume 4 No 1

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