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## Case Report

# Acute myocardial infarction in labor: a rare case report

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### ABSTRACT

Myocardial infarction (MI) presenting first time in labor is rare with incidence of 3 case per 1,00,000 and its management during labor is rarely seen in literature. In this case, a 29-year-old gravida 2 para 1 with previous caesarean section 1 year back with history of postpartum eclampsia presented with acute breathlessness and lower abdominal pain. She was diagnosed with acute MI. Patient had emergency caesarean section due to scar tenderness. Post operatively patient was managed in ICU with multi-disciplinary team of critical care, cardiologist and obstetrician.

**Keywords:** MI in labor, Labor, Emergency caesarean section

### INTRODUCTION

MI during pregnancy is rare and is seen in around 3 cases per 1,00,000 deliveries.<sup>1</sup> Although rare, MI poses a potential threat to both mother and fetus. Diagnosis is often missed because of its rarity and vague clinical presentation.

Pregnancy may increase the risk of MI. Increased parity, eclampsia, pre-eclampsia and infection are risk factors for MI during pregnancy.<sup>2</sup> Other factors are increased age, diabetes and chronic medical condition.<sup>2</sup> Management of acute MI in labor is rare in literature. Acute MI in pregnancy presents unique diagnostic and management challenges as seen in this case. This case report was about management of acute MI presenting first time in labor.

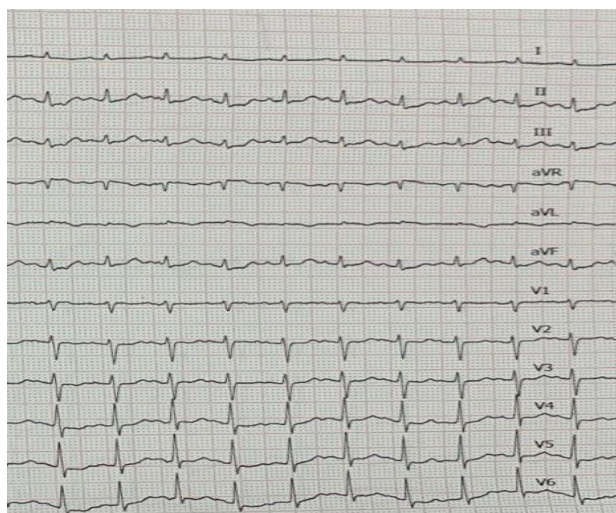
### CASE REPORT

Gravida 2 para 1, a 29-year-old lady at 35 weeks gestation with previous history of one caesarean section 1 year back presented to emergency with acute breathlessness and lower abdominal pain. She had history of postpartum eclampsia during last caesarean section. No documents were available. In present pregnancy there was no history

of raised blood pressure records. Antenatal follow up was normal. No history of any other medical disease. On examination her pulse rate was 140 beats/min and blood pressure were 90/50 mmHg. Respiratory rate was 24 per minute with oxygen saturation of 92% on room air. Physical examination revealed bilateral chest crepitation with normal heart sound. Electrocardiogram (ECG) record revealed ST segment depression in leads II, III and aVF suggestive of inferior wall MI (Figure 1). Blood investigation showed elevated troponin I levels of 1.42 ng/ml. Echocardiography revealed right ventricle hypokinesia with reduced ejection fraction of 30%.

During the course of investigation patient had leaking per vaginum with scar tenderness. Fetal heart rate was stable. Decision for emergency caesarean section was taken after consultation with critical care ICU and cardiology team. Emergency caesarean section was done under general anaesthesia. Intraoperatively scar was thinned out. A baby boy of 2.4 kg was born with Apgar scar of 9/10. Post operative patient was kept intubated in view of deteriorating lung condition and severe hypotension. Post operatively patient was kept under ICU care on inotropic support. Repeat troponin I levels after 8 hours of surgery was 1.8 ng/ml. Medical follow-up decision was made by

cardiologist team and Low molecular weight heparin (enoxaparin 0.6 ml) was started after 12 hours of surgery. On post operative day 4 patient was weaned off to CPAP. On fifth post operative day, echocardiography revealed improvement in ejection fraction to 45-50%. By post operative day 6 patient was maintaining oxygen saturation on room air and blood pressure without inotropic support. Patient had improved chest X-ray findings. Patient was discharged on eighth day after suture removal.



**Figure 1: ECG of patient with heart rate of 132 beats/min with depression in lead II, III and aVF.**

## DISCUSSION

Pregnancy is considered a condition that can unmask underlying cardiac disease condition due to hemodynamic changes in pregnancy. MI is a major cause of morbidity and mortality for pregnant and postpartum women. MI should be thought in cases of patient with chest discomfort and breathlessness.

Diagnosis of MI during pregnancy is mostly based on symptoms such as angina, sweating and shortness of breath. Delayed diagnosis is usually because of atypical symptoms which mimics normal physiological changes in pregnancy.<sup>3</sup> ECG is safe and non-invasive test to detect cardiac problem. Cardiac markers (troponin I and T) are most sensitive and specific markers of myocardial necrosis. CT angiography is further done to obtain anatomical outline but its use in pregnancy is limited because of fetal radiation risk.<sup>4</sup>

Management is same as other patients. Treatment is initiated by oxygenation and pain management. Percutaneous coronary intervention is the best choice in capable patients.<sup>3</sup> Anti-platelet and anti-thrombotic therapy are the two main arms of MI treatment. Heparin is safely used in pregnancy and it should be stopped at least

6 hours prior delivery. Protamine sulphate may be required to reduce the risk of bleeding which can occur during delivery, operation and anaesthesia.<sup>5</sup>

In this patient low molecular weight heparin was started post operatively as patient went into labor during the course of investigation.

Oxytocin is used in concentrated infusion form for augmentation of labor and in third stage of labor. Ergot derivatives are avoided for uterine contraction as they might cause prolonged spasm and iatrogenic acute MI in otherwise normal coronary arteries.

Vaginal delivery is preferred except in cases of advanced cardiac disease. Pain could increase maternal heart rate and in turn increases maternal oxygen demand, due to this early continuous epidural anaesthesia is administered to minimise pain. Epidural anaesthesia, supplemental oxygen and left lateral position are usually done during labor. Instrumental delivery is performed in second stage of labor to cut short the duration.

First 48 hours is most crucial time period in pregnancy related acute MI and these patients should be monitored in coronary intensive care units. Patient should be treated by multidisciplinary approach of obstetrician with cardiologist, anaesthesiologist and neonatologist.

## CONCLUSION

Pregnancy related acute MI is a rare and serious condition that requires special attention and needs multidisciplinary approach.

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