

Case Report

# Rhabdomyolysis in a pregnant woman: A case report

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## Abstract

Hyperemesis gravidarum may prompt hypovolemia and significant electrolyte anomalies. Hypokalemia is one of the most common abnormalities. When practical, it may lead to rhabdomyolysis.

We report a rare case of rhabdomyolysis in a 24 years old pregnant woman due to hyperemesis gravidarum. She had a profound weakness. Physical examination and laboratory findings showed a need for the hospital admission. Aggressive rehydration and electrolytes were the definite treatment. Her serum creatinine kinase (CK) concentration during entry was 80,01 units/L.

Continuous rehydration led to complete recovery clinically. On discharge, she had normal laboratories.

## Introduction

Hyperemesis gravidarum, a severe form of pregnancy-associated nausea and vomiting, affects 0.3% - 3% of all pregnancies. Symptoms include persistent vomiting, ketonuria, weight loss (5% of prepregnancy weight), hypovolemia, and electrolyte disturbances [1].

Electrolyte disturbances may have profound physiologic effects. While rare in pregnancy, substantial morbidity has been associated with electrolyte disturbances, in particular, potassium equilibrium [1].

Profound hypokalemia may lead to rhabdomyolysis and acute kidney injury.

A clinical investigation of the mechanism of rhabdomyolysis in potassium depletion revealed that potassium released from contracting skeletal muscle cells into interstitial fluid directly dilated adjoining arterioles, mediating the potassium-induced increase in muscular blood flow. The failure to release potassium during skeletal muscle contraction leads to diminished hyperemia, potentially resulting in muscle injury, ischemia, and necrosis. Potassium-depleted animals showed elevated creatine phosphokinase (CPK) activity in serum, suggesting a loss of skeletal muscle integrity [2].

This case can lead to serious complications during pregnancy. Early administration of fluids can stop this complication.

## Case report

A 24-year-old female who had her first pregnancy presented to the emergency department with weakness, nausea, and vomiting for the past 24 hours. She is in her 16 weeks of gestation. She had multiple admissions to the hospital because of hyperemesis gravidarum. Her current emesis started three days ago with no improvement, even with the anti-emetic drugs. This time she had a general weakness. She could not tolerate oral solid and liquid intake on the presentation day. In addition, she had gradual and increasing upper and lower extremities weakness. She reported that she could not walk even though she had no lightheadedness or dizziness.

Past medical and surgical history was unremarkable. Vital signs were as follows: blood pressure was 110/60 mm Hg, pulse 108 beats per minute, temperature 91.8°F, and respiratory rate 19/min. On examination, she had a tremendous deep-tendon reflexes weakness.

ECG showed prolonged QTc. Laboratory findings are shown in Table 1. We decided to admit the patient to the

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**Table 1:** Laboratory findings at presentation.

Wight blood cell count	Hemoglobin	Platelets	Creatinine	CRP	Urea	Glucose	Na <sup>+</sup>	K <sup>+</sup>
11×10 <sup>9</sup> /ml	10.5×10 <sup>5</sup> gr/dl	315×10 <sup>5</sup> /mcl	1.2 mg/dl	16	55 mg/dl	85 mg/dl	133 mEq/L	1.7 mEq/L

intensive care unit (ICU) for monitoring. On admission, we started aggressive rehydration with electrolyte repletion.

On day 3 of admission, she reported muscle pain. Her serum creatinine kinase (CK) concentration was 80,01 units/L. We continue aggressive rehydration and electrolyte repletion. After 48 hours, her serum creatinine kinase (CK) concentration declined to 900 units/L. With this improvement, she was discharged to the ward. During the five days of ICU admission, serum creatinine was in the normal range. On day 10 of hospital admission, her laboratory findings were normal. She had no complaints. As a result, we discharged the patient with an anti-emetic drug, folate and a multivitamin.

## Discussion

Rhabdomyolysis is most commonly caused by trauma, exertion, muscle hypoxia, drugs, dehydration and metabolic or electrolyte disorders [3].

Potassium plays an important role in the regulation of skeletal muscle blood flow in the pathogenesis of rhabdomyolysis. Potassium released from muscle cells during exercise mediates vasodilation, which increases the blood flow to muscles appropriately to meet enhanced energy demands. However, profound hypokalemia (serum potassium < 2.5 mEq/L) may lead to lower increases in blood flow and decreased muscle perfusion, which can promote the development of rhabdomyolysis by decreasing the blood flow to the muscles in response to exertion [4].

Fluid replacement is the keystone of rhabdomyolysis treatment. Capillary damage and fluid leakage lead to “functional” dehydration that requires rapid correction. Early, aggressive fluid therapy increases renal blood flow, thereby increasing the secretion of nephrotoxic compounds that may cause AKI [5,6].

In our case report, we had a pregnant woman who had profound hyperemesis gravidum, leading to severe hypokalemia. After a few days, she developed muscle pain and cramps. Laboratory findings showed low serum potassium levels and rhabdomyolysis due to hypokalemia. To the fetus,

fetal trouble or fetal demise could be the outcome. The admission to the intensive care unit was required for monitoring. Aggressive resuscitation with intravenous fluids resulted in significant recovery. Follow-up for one month showed no complaints.

In our case report, we had a pregnant woman who had profound hyperemesis gravidum which lead to severe hypokalemia. After a few days, she developed muscle pain and cramps. Laboratory findings showed low serum potassium levels and rhabdomyolysis as a result of hypokalemia. To the fetus, fetal trouble or fetal demise could be the outcome. The admission to the intensive care unit was required for monitoring. Aggressive resuscitation with intravenous fluids resulted in great recovery. Follow-up for one month showed no complaints.

## Conclusion

Rhabdomyolysis associated with hyperemesis gravidarum is a rare complication. Physicians should be aware of this. Early diagnosis and management lead to a better outcome.

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