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Case Report

HELLP syndrome: critical insights from a post-cesarean involving rapid hemoglobin drop

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ABSTRACT

HELLP (Hemolysis, elevated liver enzymes and low platelets) syndrome is a severe form of preeclampsia characterized by hemolysis, elevated liver enzymes, and low platelet count. It can lead to significant maternal morbidity and mortality if not promptly diagnosed and treated. A 32-year-old female, G2P1A0L1, at 38 weeks gestation, presented with labor-like pain, vaginal leaking, lower limb edema, and high blood pressure. She was diagnosed with severe preeclampsia and underwent an emergency cesarean section. Post-operatively, her hemoglobin dropped from 13 g/dL to 6 g/dL despite blood transfusions. Imaging and tests excluded internal bleeding but revealed mild pleural effusion and pelvic fluid collection. Liver function tests revealed thrombocytopenia and increased liver enzymes, which led to a diagnosis of HELLP syndrome. Supportive treatment with fresh frozen plasma, platelets, and packed RBCs was administered. Early identification and treatment of HELLP syndrome is necessary in patients with severe preeclampsia and notable postoperative hemoglobin reduction. Supportive treatment led to clinical improvement and normalization of this patient's hemoglobin levels, blood pressure, liver enzymes, and platelet counts.

Keywords: HELLP syndrome, Preeclampsia, Postpartum hemorrhage, Post cesarean hemoglobin drop

INTRODUCTION

HELLP syndrome, an acronym for hemolysis, elevated liver enzymes, and low platelet count, is a life-threatening obstetric complication often considered a variant of severe preeclampsia. It occurs in 0.5-0.9% of all pregnancies and in 10-20% of women with severe pre-eclampsia.[1] HELLP syndrome can result in considerable maternal and fetal morbidity and mortality if not swiftly recognized and treated.[2] The condition is characterized by microangiopathic hemolytic anemia, hepatic dysfunction, and thrombocytopenia, which can result in various clinical manifestations, including right upper quadrant pain, nausea, vomiting, and jaundice.[3] Early recognition and appropriate treatment are essential to improve outcomes for both the mother and the fetus.

The objective of this case report is to highlight the importance of recognizing HELLP syndrome as a potential cause of significant hemoglobin drop following a cesarean section in patients with severe preeclampsia. This report aims to emphasize the need for thorough diagnostic evaluation and prompt management to improve maternal and fetal outcomes.

CASE REPORT

A 32-year-old female G2P1A0L1. At 38 weeks gestation, presented to emergency room in the hospital, referred from a private clinic complaining of labor-like pain, vaginal leaking for two days, lower limb edema, and high blood pressure. her first pregnancy was uneventful and ended in a normal vaginal delivery.

Within this pregnancy, she developed high blood pressure in the second trimester and was treated with Aldomet tablets. On examination, patient had a blood pressure of 160/110, facial and leg edema, and a soft, dilated cervix

with ruptured membranes. Initial tests showed a hemoglobin level of 13 g/dL and 3+ protein in the urine.

An ultrasound verified a breech presentation, leading to a diagnosis of severe preeclampsia for the patient. she was taken to the OR for an emergency lower segment cesarean section (LSCS) under spinal anesthesia. The operation went smoothly without complications, and a 2 kg baby girl was delivered by breech. Post-operatively, a catheter was in place to monitor urine output, and she was shifted to the recovery area where patient received magnesium sulfate, hydralazine, cefazolin, and analgesics, her vital signs were stable, after 2 hour, patient transferred to the OB ward. The next day, magnesium sulfate was stopped, but her hemoglobin dropped markedly to 7.1 g/dL and then to 6.3 g/dL, while she looked anemic. Blood transfusion was done, raising hemoglobin to 7.2 g/dL. On the third day, patient complained of abdominal distension and generalized fatigue, with hemoglobin dropped to 6 g/dL again. Suspecting internal bleeding, a laparotomy was planned, after doing a through investigations including ultrasonography, CT scan, chest X-ray, MRI, and cystogram.

All results were found normal except for mild pleural effusion and fluid collection in the pelvis. Consequently, internal bleeding was ruled out; nonetheless, liver function tests revealed thrombocytopenia and high liver enzymes, corroborating the diagnosis of HELLP syndrome as a contributing factor to the substantial decrease in hemoglobin resulting from hemolysis and low platelet counts. thus, patient was given supportive treatment including fresh frozen plasma, platelets and packed RBCs. After that the patient improved, abdominal distension subsided, hemoglobin level raised to 8.9 gm, blood pressure returns to normal reading 110/70, and liver enzyme and platelet were within normal values. After 10 days of admission, the patient looks well, on normal diet, started to feed her child and was discharged home on tonic medication, given appointment for follow-up in the outpatient clinic after 2 weeks.

Clinical findings

Initial presentation: Labor-like pain. Vaginal leaking for two days. Lower limb edema. High blood pressure (160/110 mmHg).

Physical examination: Facial and leg edema. Soft, dilated cervix with ruptured membranes

Initial laboratory results: Hemoglobin: 13 g/dl. Urine protein: 3+

Post-operative findings: Marked drop in hemoglobin levels (from 13 g/dl to 7.1 g/dl, then to 6.3 g/dl, and finally to 6 g/dl). Abdominal distension. Generalized fatigue. Mild pleural effusion (noted on imaging). Fluid collection in the pelvis (noted on imaging)

Liver function tests: Low platelets. Elevated liver enzymes

Final diagnosis: HELLP syndrome

Response to treatment: Hemoglobin level raised to 8.9 g/dl. Blood pressure returned to normal (110/70 mmHg). Normalization of liver enzymes and platelet counts. Resolution of abdominal distension and other symptoms.

Therapeutic intervention

Emergency cesarean section performed under spinal anesthesia due to severe preeclampsia and a 2 kg baby girl was delivered by breech. Post-operative care included monitoring vital signs and urine output, administration of magnesium sulfate, hydralazine, cefazolin, and analgesics. Blood transfusions administered to address significant drops in hemoglobin levels. Comprehensive diagnostics was done including imaging and tests to rule out internal bleeding and identify the underlying cause. Supportive treatment for HELLP Syndrome included fresh frozen plasma, platelet transfusions, and packed red blood cells (RBCs). Continuous monitoring was performed including regular assessment of hemoglobin levels, blood pressure, liver enzymes, and platelet counts until clinical improvement.

Follow-up and outcomes

Hemoglobin level increased to 8.9 g/dL after supportive treatment. Blood pressure normalized to 110/70 mmHg. Liver enzymes and platelet counts returned to normal ranges. Abdominal distension subsided, and overall clinical condition improved.

During follow-up visits, the patient maintained stable hemoglobin levels, normal blood pressure, and normal liver enzyme and platelet counts. No recurrence of symptoms related to HELLP syndrome. No significant complications were reported during or after the treatment. The patient expressed relief and satisfaction with the prompt diagnosis and effective treatment, leading to a favorable outcome for both herself and her baby.

DISCUSSION

The presented case of a 32-year-old female diagnosed with HELLP syndrome at 38 weeks gestation underscores the critical nature of this condition and the importance of prompt diagnosis and management. HELLP syndrome, defined by Hemolysis, Elevated Liver enzymes, and Low Platelets, represents a severe variant of preeclampsia that may result in considerable maternal and fetal morbidity and mortality. In this case, the patient developed high blood pressure in the second trimester, which was managed with antihypertensive medication. However, the progression to HELLP syndrome post-operatively highlights the unpredictable nature of the condition. The marked drop in hemoglobin levels and the development of abdominal distension and generalized fatigue post-

cesarean section necessitated a thorough diagnostic workup to rule out internal bleeding. The eventual diagnosis of HELLP syndrome was confirmed by laboratory findings of low platelets and elevated liver enzymes.

This case underscores the importance of a multidisciplinary approach in managing such high-risk pregnancies, involving obstetricians, anesthesiologists, and critical care specialists, this align with Leavitt study.[4]

The favorable outcome in this case, with the patient's hemoglobin levels stabilizing, normalization of liver enzymes and platelet counts, and resolution of symptoms, highlights the effectiveness of timely diagnosis and intervention. Continuous monitoring and follow-up ensured the patient's recovery and the well-being of the newborn.

This case reinforces the need for heightened awareness and prompt management of HELLP syndrome, particularly in patients with preeclampsia. Early recognition and intervention are key to preventing severe complications and ensuring positive maternal and fetal outcomes.

Similar cases reported in the literature emphasize the variability in presentation and outcomes of HELLP syndrome. For instance, a case study by Haram et al.[5] A 29-year-old woman at 34 weeks of gestation presented with severe preeclampsia and subsequently developed HELLP syndrome.

The patient underwent an emergency cesarean section and required intensive care post-operatively due to complications including significant hemolysis and liver dysfunction.[5] Another case reported by Sibai involved a 35-year-old woman at 36 weeks gestation who presented with right upper quadrant pain, nausea, and vomiting, alongside hypertension and proteinuria. The diagnosis of HELLP syndrome was made based on laboratory findings, and the patient was managed with corticosteroids and delivered via cesarean section. Post-operatively, the patient required blood transfusions and intensive monitoring, similar to the management in the presented case.[1] A study by Audibert et al analyzed 442 cases of HELLP syndrome and determined that prompt delivery, frequently via cesarean section, along with supportive interventions such as blood transfusions and hypertension treatment, were essential for enhancing mother and fetal outcomes.[6]

CONCLUSION

The presented scenario, along with analogous cases from the literature, indicates that if there is a significant decline in hemoglobin following a cesarean section, HELLP syndrome should be contemplated, necessitating prompt intervention to reduce the serious consequences.

Multidisciplinary care involving obstetricians, anesthesiologists, and critical care specialists is essential. This case highlights the necessity for continuous research and education to enhance outcomes for those with HELLP syndrome.

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