A Late Complication of Postpartum HELLP Syndrome: Subarachnoid Hemorrhage Developed at the Postpartum Fourth Day

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ABSTRACT

HELLP syndrome is a rare complication of pregnancy which is characterized by hemolysis, elevated liver enzymes, and a low platelet count. The risk of mortality during pregnancy increases with life-threatening complications, and intracranial hemorrhage is the most significant cause of death in pregnant women who have preeclampsia. We represent a case of a 27 year old woman, with 25 weeks of pregnancy diagnosed with subarachnoid hemorrhage developed at the postpartum fouth day. Careful observation and especially rapid and careful management of hypertension can save patients with severe intracranial complications of HELLP syndrome.

Keywords: HELLP syndrome, Maternal mortality and morbidity, Preeclampsia

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Introduction

HELLP syndrome is a rare complication of pregnancy characterized by hemolysis, elevated liver enzymes, and a low platelet count. The risk of mortality during pregnancy increases with life-threatening complications, and intracranial hemorrhage is the most significant cause of death in pregnant women who have preeclampsia. In a study by Sameshima et al., 25% of the 230 cases of maternal death are reported to be due to primary intracranial hemorrhage. Half of these patients had intracranial bleeding during pregnancy and 20% during the birth; in 30% intracranial bleeding was identified in the postpartum period.[1] Because of the frequent use of computed tomography (CT) and magnetic resonance imaging (MRI) methods, intracranial bleeding is now discovered more frequently. We present the case of a 27 - year-old G1P0 woman whose cesarean section was performed after she had been diagnosed with HELLP syndrome and who suffered from a subarachnoid hemorrhage on the third day after her operation.

Case Report

A 27-year-old woman, 25 weeks into her first pregnancy, was admitted to the emergency department with a severe headache, drowsiness, and blurred vision. Upon initial evaluation, her blood pressure was measured at 180/120 mm Hg. The neurological examination concluded that she was conscious and prone to falling asleep but was able to give verbal answers to questions. Motor and sensory examinations showed no abnormalities. The patient received all routine blood biochemical tests and, although she had been given calcium channel blockers, her blood pressure remained consistently high. After consultation with a cardiologist, perlinganit was administered via intravenous (IV) therapy. Obstetric ultrasound evaluation showed a biometry consistent with 25-26 weeks of intrauterine fetal heart rate, a positive fetus with normal amniotic fluid, and a normal posterior placenta. The vaginal examination showed that the cervical canal was closed. The results of the blood tests were evaluated as ALT: 87 U/L, AST: 103 U/L, LDH: 2050 U/L, PLT:236.000/mm^3, Hg: 13 g/dl, urea: 24 mg/dL, creatinine: 0.7 mg/dl, and her urine had 3 + proteinuria. After the perlinganit infusion, the patient's blood pressure values continued to be unstable. Her blood values were reevaluated two hours later, and the results were ALT: 194 U/L, AST: 150 U/L, PLT: 170.000 mm^3, LDH >2150 U/L, and Hg: 11.9 g/dl. The patient then underwent a cesarean section with a diagnosis of HELLP syndrome. Her prothrombin time, activated partial thromboplastin time, and serum bilirubin levels were normal. A live male baby, weighing 600 g. was delivered by cesarean section. Although there was no perioperative bleeding, intra-abdominal and subcutaneous drains were placed in case she developed postoperative bleeding. After approximately 24 hours, the intubated baby was extubated. The patient was taken to intensive care in the postoperative period and perlinganit IV infusion was continued. An IV 1 g/hour of maintenance $MgSO_4$ was administered for the prophylaxis of eclampsia and a 24-hour infusion was continued. The patient's postoperative blood pressures re-

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mained at 160-140/110-90 mm Hg. On postoperative day 1, the patient still had a tendency to fall asleep and her blood values were ALT: 158 U/L, AST: 248 U/L, LDH> 2150 U/L, Hg: 13 g/dL, WBC: 25.000, urea: 27 mg/dl, creatinine: 0.7 mg/dl, and PLT: 102.000 mm^3. The patient's cranial MRI and urine output were both normal. On postoperative day 2, because of the normal course of postoperative blood pressure, the perlinganit IV infusion and $MgSO_4$ IV treatment were stopped, and oral Alfamed and Norvasc treatments were started. The intraabdominal and subcutaneous drains were removed because the patient had not been bleeding. Routine blood values were ALT: 102 U/L, AST: 103 U/L, LDH: 2112 U/L, platelet: 103. 000 mm^3, Hg: 9.6 g/dL, PT: 12.3, INR 0.9, aPTT: 26.7, urea: 20 mg/dL, and creatinine: 0.6 mg/dL. On postoperative day 3, the patient deteriorated, developing a fever of 39 ◦C and a stiff neck. The liver function tests had started to rise again. Because tests showed the cause of the patient's elevated temperature to be AST: 139 U/L, ALT: 112 U/L, LDH: 1705 U/L, hemoglobin 11 g/dL, platelets: 95.000 mm^3, and WBC: 25x103, blood and urine cultures were obtained and a chest X-ray was done. Hepatitis markers were normal. Due to the patient's increasing lethargy, the cranial CT and MRI were repeated. The chest X-ray was normal. However, the BT revealed subarachnoid hemorrhage, and the brain surgery team was consulted (Figure 1). With a diagnosis of subarachnoid hemorrhage, the patient was referred for further evaluation at a treatment center. The patient died on the 25th day after her operation.

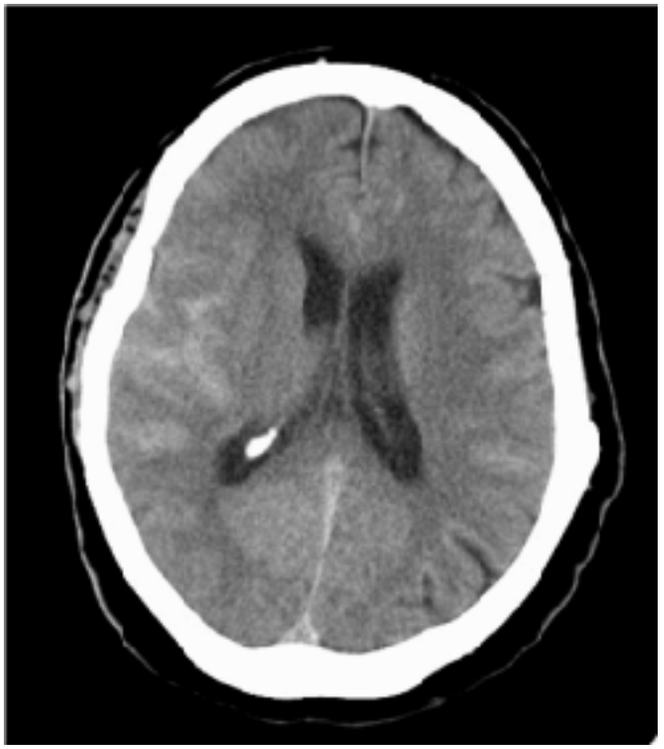

Figure 1: Computerized Tomography imaging of subarachnoidal heamorrage of patient wit HELLP syndrom at fourt day.

Discussion

Intracranial hemorrhage is a serious clinical disease with a high rate of mortality and sequelae among hypertensive complications of pregnancy. HELLP syndrome occurs in 10-20% of patients with severe preeclampsia and in 0.5-0.9% of all pregnancies.[2,3] For HELLP syndrome, the first definitive treatment approach is to terminate the pregnancy.[4] The destruction of red blood cells by hemolysis increases LDH levels and causes a decrease in hemoglobin concentration. Therefore, hemolysis can be diagnosed by high levels of LDH and bilirubin.[5] In our case, LDH and bilirubin levels were high enough to confirm the diagnosis of HELLP syndrome. Patients with this syndrome have a 13-65% rate for complications. The most common complications in patients, particularly those who have a late diagnosis, are that they require blood transfusions and have common intravascular coagulation, acute renal failure (ARF), and acute respiratory distress syndrome (ARDS).[6] In our case, because of early diagnosis and early intervention, there was no need for a blood transfusion and blood products. Complications such as disseminated intravascular coagulation (DIC) and renal failure did not develop. However, in spite of the use of multiple antihypertensive agents, the patient's blood pressure values did not normalize and, on the third day after the operation, her rising liver function tests, fever, neck stiffness, and increasing lethargy directed us to examine her for intracranial pathology. In pregnancies complicated by HELLP syndrome, DIC, ablatio placenta, ARF, pulmonary edema, and complications such as hepatic subcapsular hematoma can occur.[7] Although intracerebral complications are uncommon, these increase the risk of mortality and morbidity in pregnancy and in the postpartum period. Intracranial hemorrhages are often due to abnormalities in vascular coagulopathy but can also be caused by preeclampsia/eclampsia.[8] In patients under the age of 25, subarachnoid hemorrhage is usually due to vascular malformations, and in patients over the age of 25, it usually occurs as a result of an aneurysm in the third trimester of the pregnancy.[9] Eclampsia is seen in 2% of pregnancies and these result in 24-47% with ischemia and 14-44% with intracerebral hemorrhage.[10] In our case there was no eclampsia clinic, and the subarachnoid hemorrhage was found after the pre-eclampsia and HELLP syndrome had been diagnosed. Yoshikane et al.[11] presented a 34-year-old case involving subarachnoid hemorrhage caused by eclampsia with no intracranial aneurysm. In our case, the clinical and laboratory results showed improvement until postoperative day 3. On that day, the patient suffered an unexplained fever of up to 39 ◦C, tachycardia, stiff neck, a continuing labile blood pressure that was rising to 160/100 mmHg levels, and her declining liver function tests were increasing again, all of which directed us to look into a possible infection or examine her for cranial pathology. Subarachnoid hemorrhage occurs with the upper limits of normal blood pressure and in spite of the absence of DIC. Unlike the case presented by Yoshikane, our patient died at the 25th day after the

operation. Because the most common cause of intracerebral hemorrhage in young women is vascular anomalies, even though the situation is improving for pregnant women with HELLP syndrome we believe that aggressive treatment is necessary to keep the blood pressure within the normal range. Patients who have HELLP syndrome and are treated in intensive care units should not be discharged until their blood pressure is within a normal range. During pregnancy, aneurysmal subarachnoid hemorrhage is a rare but important cause of maternal mortality. Physiological changes that occur during pregnancy may predispose pregnant patients to the formation and rupture of aneurysms. Medical complications are relatively-common in patients with subarachnoid hemorrhage. This ratio is expressed as 40%, and the most common complications include anemia, hypertension, arrhythmia, elevated liver enzymes, electrolyte disturbances, atelectasis, pulmonary edema, and pneumonia. Patients with a poor clinical grade have a higher risk of developing these complications. The mortality rate between medical and neurological complications is the same, and it is very important to acquire a better understanding of the importance of this issue.[12] In another study, 5 out of 86 patients who were diagnosed with severe preeclampsia, HELLP syndrome, and eclampsia were found to have intracranial hemorrhage. When these patients were compared to patients who had no bleeding, the results for systolic and diastolic blood pressure, platelet count, AST and ALT were statistically significant in terms of the values.[13]

Conclusion

Mortality risk of HELLP syndrome during pregnancy and after delivery increases with life-threatening complications, and intracranial hemorrhage is the most significant cause of death in such patients. Despite careful observation along with rapid and careful management of hypertension, HELLP syndrome may can save patients with severe intracranial complications of.

HELLP Sendromunun Geç Bir Komplikasyonu: Postpartum Dördüncü Günde Gelişen Subaraknoid kanama

ÖZET

HELLP sendromu, hemoliz, serumda artmış karaciğer enzimleri ve düşük trombosit sayısı ile karakterize gebeliğin nadir bir komplikasyonudur. Mortalite hayatı tehdit eden komplikasyonlar ile artmaktadır ve mortalitenin en belirgin nedeni intrakranyal kanamalardır. Biz burada 27 yaşında, 25 haftalık ilk gebeliği olan ve postpartum 4. günde subaraknoid kanama gelişen bir olguyu sunduk. Dikkatli değerlendirme ve özellikle hipertansiyonun hızlı ve dikkatli yönetimi HELLP sendromuna bağlı intrakranyal komplikasyonlardan hastaları koruyabilir.

Anahtar Kelimeler: HELLP sendromu, Maternal mortalite ve morbidite, Preeklampsi

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