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Case Report

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Successful Management of a Complicated Mirror Syndrome: A Case Presentation

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ABSTRACT

Mirror syndrome is a rare but serious condition of pregnancy characterized by fetal hydrops of any cause and maternal edema that has severe maternal and fetal morbidity and mortality. In most cases, the pregnancy should be terminated to resolve the symptoms. Some cases with mirror syndrome resolve spontaneously due to the demise of the hydropic fetus or fetal infection with parvovirus. This case is a rare complicated mirror syndrome that managed conservatively up to 34 weeks and 3 days of gestation. This case was a unique Dichorionic Diamniotic (DCDA) twin pregnancy with mirror syndrome, that feticide of the hydropic fetus has resolved symptoms of mirror syndrome. Although the mother's liver enzyme increased after 3 weeks of feticide, we managed to save pregnancy by conservative treatment until 34 weeks and 3 days of gestation. Finally, the mother had a cesarean section delivery. The baby is now 6 months old with normal neurodevelopmental parameters. This case suggests that preeclampsia can happen after feticide due to twin pregnancy and the retained placenta. If we consider this event, we can manage pregnancy conservatively as a preeclamptic patient.

Introduction

Mirror or Ballantyne syndrome is a rare disorder characterized by maternal edema with fetal hydrops in association with placental edema [1]. The syndrome is frequently associated with other pregnancy complications such as preeclampsia or hypertension, pulmonary edema, and other maternal and fetal morbidity and mortality [2]. Some limited surveys report spontaneous remission of mirror syndrome that is secondary to the fetal demise or parvovirus infection [3, 4]. In most cases of mirror syn-

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drome, pregnancy should be terminated to prevent maternal and fetal morbidity and mortality [5].

This article reports a unique case of mirror syndrome in a Dichorionic Diamniotic (DCDA) twin pregnancy that was treated with fetal reduction at first. Although some mother's symptoms returned, we saved and managed the mother conservatively until 34 weeks and 3 days of gestation.

Case Presentation

A 31-year-old, G2Ab1 patient with DCDA twin gestation was referred to Yas Hospital at 22 weeks and 1 day of gestation due to complicated pregnancy with severe fetal hydrops of one fetus and symptoms of mirror syndrome in mother. In the patient's past medical history, there was a high blood pressure (systolic blood pressure: 140-150 mm Hg and diastolic blood pressure: 90 mm Hg) from one week ago; also she had subclinical hyperthyroidism but did not use any drug.

Upon arrival, she had proteinuria (520 mg in 24 hours' urine); her serum creatinine level was 1.2 mg/dL, and Hematocrit level was 29% that showed hemodilutional state. Other lab data were within the normal range. Antibody screening in mother was negative. Ultrasound examination confirmed DCDA twin pregnancy in 22 weeks of gestation with severe fetal hydrops, severe ascites, and hydrothorax of fetus A. Fetus B had a normal structure and biometric values.

Fetal reduction with KCL was performed for the hydropic fetus after that ultrasound examination showed fetal demise for fetus A and normal fetal heart rate for fetus B. The procedure was uncomplicated. After 2 days, the mother's blood pressure returned to normal range, and after 7 days of hospitalization, her lab data (proteinuria, creatinine level, and Hematocrit) returned to the normal range. She was discharged with normal ultrasound parameters for fetus B (estimated fetal weight of fetus B was 677 g, and Doppler values were normal).

The mother was visited ambulatory once a week. Also, she had a monthly endocrinologist visit due to her subclinical hyperthyroidism. After 3 weeks, at a gestational age of 26 weeks and 1 day, the endocrinologist referred her to us due to her high level of Aspartate Transaminase (AST) and Alanine Transaminase (ALT) (AST: 123 IU/L, ALT: 115 IU/L). Then, she had normal blood pressure, and other lab data were normal, although she had a high Hematocrit level (35%). Her sonography showed a normal fetus with normal Doppler values.

Gastroenterology consult was done for the patient. The viral markers and liver sonography showed normal data, so the patient was returned to her weekly visit schedule. In the follow-up, her AST and ALT values gradually increased although her Bilirubin and other data were in normal ranges.

During that period, the patient's blood pressure, and proteinuria were checked twice a week; the patient had no other signs or symptoms of preeclampsia. At the gestational age of 34 weeks and 3 days, the patient had a faint episode. After reporting that to her perinatologist, she was recommended to come to the hospital for further evaluation. At the time of admission, she had elevated liver function tests (AST: 683 IU/L, ALT: 565 IU/L, Bilirubin: 1 IU/L, Hematocrit: 38%, Hemoglobin: 12 mg/dL, Platelet: 160000 per mL) with normal blood pressure and pulse rate: 100/min, oral temperature: 37°C. She had leakage of amniotic fluid that was bloody and in nonstress test evaluation, she had prolonged deceleration with good variability. Then she was transferred to the operation room and underwent a cesarean section. During the time of operation, a massive occult abruption was found.

Her baby was born with 9-10 Apgar scores in 0 and 5 minutes of birth, and the pH of umbilical arterial blood gas was 7.20 with other normal markers. After 12 hours of cesarean section, her Hemoglobin level reached 6 mg/dL, so she received 2 unit packed cell. After one day of operation, her lab data were as follows: AST: 80 IU/L, ALT: 49 IU/L, Hematocrit: 30%, Hemoglobin: 8 mg/dL. The patient was discharged 3 days after the operation with stable hemodynamic state and normal vital signs. After 3 weeks, she had an outpatient visit with normal values of laboratory data. Her baby is 6 months old now with normal development.

Discussion

Mirror syndrome is a rare but serious condition of pregnancy characterized by fetal hydrops of any cause and maternal edema, that has severe maternal and fetal morbidity and mortality [1, 2]. In most cases, pregnancy should be terminated to resolve the symptoms [5]. Some cases with mirror syndrome resolve spontaneously due to the demise of the hydropic fetus or fetal infection with parvovirus [3, 4].

The exact underlying mechanism of mirror syndrome is unknown [6]. Some argue about the imbalance between angiogenic and antiangiogenic factors in a patient with mirror syndrome [7]. This case was a DCDA twin pregnancy with mirror syndrome that feticide of hydropic fetus resolved the symptoms of mirror syndrome. Although the

mother's liver enzyme elevated after 3 weeks of feticide, we saved this pregnancy conservatively until 34 weeks and 3 days of gestation.

It is reasonable to think that mirror syndrome is one of the variants of preeclampsia with some similar finding such as high blood pressure, proteinuria, and retention of body fluid. If the presentation and symptoms of mirror syndrome continue, termination of pregnancy is recommended to prevent maternal mortality and morbidity. Therefore, differentiation between mirror syndrome and preeclampsia is very important to decide whether to terminate the pregnancy or continue it. One of the differences between the two syndromes is the Hematocrit concentration. In mirror syndrome due to hemodilution, the patient has a low Hematocrit level while preeclamptic patients have high Hematocrit level due to hemoconcentration [8].

In this case, before the feticide, the patient had a low Hematocrit level (29%) that showed mirror syndrome. However, after 3 weeks of feticide when AST and ALT raised, the Hematocrit level reached to 35% that was a sign of preeclampsia. In addition, preeclampsia often happens at the advanced maternal age [8]. In this case, at the time of mirror syndrome, the patient was at 22 weeks and 1 day of gestation. However, her lab data showed increased AST and ALT values in 26 weeks of gestation.

In summary, we presented a unique case of mirror syndrome in DCDA twine pregnancy that underwent selective feticide of a hydropic fetus, and her symptoms resolved after 7 days. However, her AST and ALT raised gradually, and Hematocrit concentration reached 35% with normal blood pressure and without proteinuria. It suggests an atypical form of preeclampsia that happened after feticide due to the retained placenta.

Ethical Considerations

Compliance with ethical guidelines

This case report does not involve any active intervention on patients, and therefore, ethical approval is waived. The patient agreed voluntarily to participate in this research. Written informed consent was obtained from the patient for the release of this case report.

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Conflict of interest

The authors declared no conflict of interest.

Authors' contributions

Writing the manuscript: Nafiseh Saedi; Treating the patients: Fatemeh Rahimi-Sharbaff; Reading and approving the final manuscript: All authors.

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