

CASE REPORT

Obstetric Outcome in a Patient with Aplastic Anemia

⁴Vineeta Gupta, ²Prachi Maheshwari, ³Archna Tandon, ⁴Anuja Nanda

ABSTRACT

Aplastic anemia is a rare disease caused by destruction of pluripotent stem cells in bone marrow. The etiology may be radiation exposure, chemotherapy, environmental toxins or it could be autoimmune. During pregnancy it can be life threatening for both mother and child. Treatment options are erythrocytes and platelet transfusions and immune suppressive therapy. We report a series of obstetric events in the life of a woman whose pregnancy was complicated due to aplastic anemia but her subsequent obstetric outcome improved after successful bone marrow transplantation.

Keywords: Aplastic anemia, Obstetric outcome in aplastic anemia.

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INTRODUCTION

Aplastic anemia is a rare disease caused by destruction of pluripotent stem cells in bone marrow. The etiology may be radiation exposure, chemotherapy, environmental toxins, or autoimmune. During pregnancy, it can be life-threatening for both mother and child. The risk to the mother is mainly in the form of sepsis and hemorrhage, while fetus may suffer from growth restriction and even intrauterine death. Pregnancy associated with marrow aplasia poses great problems for the hematologist as well as obstetrician as the management of such a case challenges the skill of both in deciding the best option. In the nonpregnant patient, the best option for aplastic anemia is bone marrow transplantation, while it is contraindicated during pregnancy because of potential embryo

toxicity. Treatment options are erythrocytes and platelet transfusions and immune suppressive therapy. We report a series of obstetric events in the life of a woman whose pregnancy was complicated due to aplastic anemia, but her subsequent obstetric outcome improved after successful bone marrow transplantation.

CASE REPORT

A 28-year-old woman with an uneventful medical history first conceived 1 year after marriage. She delivered a healthy female baby by normal vaginal delivery. There were no postpartum complications. After 1½ years, she again conceived, but had spontaneous abortion at 7 weeks gestation followed by dilation and evacuation. Five units of blood was transfused due to severe bleeding in postabortal period.

After 1 year, she again conceived. In 4th month of pregnancy, she had complaints of severe abdominal pain off and on, weakness, giddiness, epistaxis, bleeding per vaginum, hematuria, and blood in stools. Laboratory tests showed low hemoglobin level 5 gm/dL and low white blood cells 3,500/cu mm. Her coagulation screen, liver function tests, and renal function tests were normal. Bone marrow aspiration showed depressed erythropoiesis and hypoplastic marrow and moderately cellular aspirate smear (myeloid/erythroid 7:1). Mitomycin-C stress test for chromosome breakage syndrome done on cultured lymphocytes was found negative (which ruled out any other cause for pancytopenia). There was no history of use of any medications and she had not been exposed to toxic chemicals. She was diagnosed as a case of pregnancy with aplastic anemia and was advised bone marrow transplant after delivery. Until then, she received palliative treatment at our hospital.

She received multiple blood transfusions (72 units of packed red blood cells, 80 units platelets, and 7 units of fresh frozen plasma) during her stay of 3 months in our hospital. However, labor had to be induced at 28 weeks of pregnancy due to antepartum hemorrhage. She delivered vaginally a 975 gm live female fetus. Baby died after 3 days in neonatal intensive care unit due to severe prematurity. In postpartum period, she again complained of off and on bleeding per vaginum and epistaxis, which were managed conservatively.

Bone marrow transplant was done after 9 months. Patient was put on antithymocyte globulin (ATG) therapy,

¹Professor and Head, ^{2,3}Senior Resident, ⁴Assistant Professor

¹⁻⁴Department of Obstetrics and Gynaecology, Shri Guru Ram Rai Institute of Medical & Health Sciences, Dehradun, Uttarakhand India

Corresponding Author: Vineeta Gupta, Professor and Head Department of Obstetrics and Gynaecology, Shri Guru Ram Rai Institute of Medical & Health Sciences, Dehradun, Uttarakhand India, e-mail: vineetahims@yahoo.co.in

cyclosporine, and danazol. After 10 months of transplant, she developed drug-induced acute pancreatitis. The ultrasound showed hepatomegaly with ascites. She was admitted in hospital for 8 days and received supportive treatment. She acquired hepatitis B surface antigen and received lamivir.

Her menses were extremely irregular and scanty – once in 6 to 7 months. After 3 years, she again conceived. Her pregnancy was diagnosed at 24 weeks as she had highly irregular cycles. She continued to take cyclosporine during pregnancy. She received regular antenatal checkups from our hospital. Her routine hematological investigations were normal. She delivered a healthy female baby of 3.3 kg by normal vaginal delivery. There were no postpartum complications.

DISCUSSION

The annual incidence of aplastic anemia is 2 to 6 per million population per year.¹ In some parts of Asia, the incidence is higher. It is believed that the increased incidence of aplastic anemia in Asia is due to exposure to toxic substances rather than genetic disorders. Currently reported mortality of aplastic anemia associated with pregnancy is 2.7%, probably due to better immunosuppressive treatment and supportive care. Nonetheless, it is a serious condition that may manifest during pregnancy and may lead to termination of pregnancy. Moreover, if the disease preexists, then it worsens during pregnancy and the patient may die of sepsis and hemorrhage.²

Termination of pregnancy produces favorable effect in terms of remission and survival, which should be the option of choice in early gestation with severe aplasia.³ The relation between pregnancy and aplastic anemia is still unclear. Some authors have supported the idea of pregnancy being somehow involved in the genesis of disease.^{4,5} On the contrary, some authors have found no causal relation between pregnancy and the onset of aplastic anemia, supported by similar incidence of aplastic anemia between men and women.^{1,6}

In young nonpregnant patients, the first choice of therapy for aplastic anemia is allogenic stem cell transplantation, with a 5-year survival of 70 to 80%. The pregnant patient with less cumbersome disease can be managed with supportive care until term. Immunosuppressive therapy and bone marrow transplantation is not advisable until the patient has delivered.

The return of ovarian function after bone marrow transplant is also unpredictable. In a study of 200 women who received autologous bone marrow transplant, only 29 recovered ovarian function.⁷ Only younger age at transplantation somehow predicted return of ovarian function.

As described in our case, the patient had a successful bone marrow transplant and was also put on immunosup-

pressive therapy comprising cyclosporine and ATG. Cyclosporine is a potent immunosuppressive agent (category C) drug used to prolong the survival of allograft transplant. It crosses placenta and produces fetal levels 30 to 64% of those in mother's plasma. Studies have not associated any teratogenicity to cyclosporine.⁸ Growth retardation, premature birth, and low birth weight have been observed in human pregnancies in women treated with cyclosporine. Some of the pregnancies in women treated with cyclosporine were complicated by preeclampsia, which is believed to be related to increased production of thromboxane and endothelin. However, our patient suffered from none of these side effects and carried her pregnancy to term without any complications after bone marrow transplant.

Immunosuppression is noticed in the infants of transplant recipients including low immunoglobulin levels and lymphocyte counts, but most of these deficits seem to normalize by 6th month of life with no noted impact on infant's health. Our patient and baby are on regular follow-up and are doing well.

CONCLUSION

Aplastic anemia during pregnancy may be associated with adverse obstetric outcome. Following bone marrow transplantation, the return of ovarian function is unpredictable. However, if the woman conceives following bone marrow transplantation, subsequent prognosis is good both for the mother and baby.

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