

Successful pregnancy following aplastic anaemia

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Summary

Pregnancy following idiopathic aplastic anaemia is rare and is difficult to manage because of life-threatening episodes of bleeding and infections. Only a handful of cases has been reported in the literature. The pregnancies were unsuccessful in the majority. The present report describes a patient with moderately severe idiopathic aplastic anaemia who was managed with intensive haematological support leading to delivery of a healthy infant by caesarean section. Despite platelet transfusion refractoriness as a result of transfusions prior to pregnancy, adequate platelet transfusions prevented excessive bleeding. The literature is reviewed and management with platelet transfusions is discussed.

Keywords: aplastic anaemia, pregnancy, platelet transfusion

Aplastic anaemia is a serious haematological disorder which is difficult to manage. Infections and haemorrhage remain the major causes of death in these patients.¹ Over 60% of patients with severe aplastic anaemia can be successfully treated with either allogenic bone marrow transplantation or immunosuppressive therapy.² For patients who do not respond to the latter treatment and do not have the option of bone marrow transplantation, adequate supportive care has reduced morbidity and mortality.

Pregnancy following a diagnosis of idiopathic aplastic anaemia is a rare event and has seldom been reported.^{3,4} With advances in management of transfusions and infections, a successful pregnancy is possible.

Case report

The patient was a 30-year-old Chinese woman who was diagnosed to have moderately severe idiopathic aplastic anaemia at the age of five years. She did not respond to high dose corticosteroids or androgens given over a period of two years. Cyclosporin and antilymphocyte globulin were not then available and thus never given. She had a total of 30 units of packed red cells transfused up to the age of 20 years. She was asymptomatic with a haemoglobin level of 7 g/dl and did not require further blood transfusions until she was 26 years old, when her aplastic anaemia was reassessed. Her haemoglobin was 5.5 g/dl, with a reticulocyte count of

0.4%, platelet count was $21 \times 10^9/l$, total white blood cell count was $2.8 \times 10^9/l$, and absolute neutrophil count $0.62 \times 10^9/l$. Her bone marrow was hypocellular and consistent with aplastic anaemia. Urine haemosiderin was negative and Ham's test was normal. Supportive management with blood transfusions was recommenced as she became symptomatic.

At age 29 years, she had a termination of pregnancy at eight weeks of gestation in view of her serious medical problem. She was given six units of platelets and four units of packed red cells. She did not develop any complications.

At age 30 years, she presented with petechial haemorrhages and symptoms of anaemia at 18 weeks of gestation. In view of the risks of termination at this stage of gestation and her desire to proceed with pregnancy, she was managed with supportive care.

Prednisolone 10 mg daily was commenced as prophylaxis for haemorrhage. During pregnancy, she required a total of 12 units of packed red cells transfusion to keep the haemoglobin above 8 g/dl. She had haematuria at 23 weeks of gestation due to a urinary tract infection during which a total of 12 units of platelet concentrates were given. One hour post-transfusion platelet count did not show a satisfactory increment and possible platelet refractoriness was diagnosed. The haematuria subsided with treatment for the urinary tract infection. She did not require any further transfusion until delivery.

Ultrasound examination revealed a normal foetus consistent with gestational age and cardiotocographic tracings were normal. The patient remained reasonably well until the 37th week of gestation except for petechial haemorrhages. She was admitted for induction of pregnancy. She had a spontaneous rupture of membranes while in the ward and pitocin augmentation was started. She developed a fever four hours later and intravenous metronidazole and cefoperazone were commenced. Her haemoglobin was 7.5 g/dl, platelet count $9 \times 10^9/l$ and total white blood cell count $3.7 \times 10^9/l$, with a neutrophil count of $0.87 \times 10^9/l$.

Three units of platelet concentrate and two units of packed red cells were given. It was decided to conduct an emergency caesarean section because of poor progress of labour after 24 hours, despite augmentation. Intravenous pethidine and entonox were used as pain relief.

She was transfused one unit of apheresis platelet concentrate (equivalent to six units of random donor platelet concentrate) and 13 units of random donor platelet concentrates just prior to induction of anaesthesia. The

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surgery was performed without any complications and a healthy female infant weighing 2.15 kg was delivered. Blood loss was 500 ml. The full blood count of the infant was normal.

Immediately post surgery the platelet count was $106 \times 10^9/l$. The patient was observed in the intensive care unit for one day. She required another apheresis platelet concentrate on the second postoperative day as she had minor bleeding from the incision wound. She developed tenderness over the incision and low grade temperature on the 4th postoperative day, which resolved with intravenous antibiotics.

She was discharged on the 10th postoperative day. Her haemoglobin was 9.8 g/dl and platelet count was $14 \times 10^9/l$.

She returned a month later with a peri-anal infection. *Clostridium* sp was isolated and the infection resolved with intravenous antibiotics. Subsequently, she required packed red cells transfusions every 6 to 8 weeks. Oxymethalone and corticosteroids were given but there was no haematological improvement. One year after delivery, her haemoglobin was 5.6 g/dl, platelet count $9 \times 10^9/l$ and total white blood cells $2.3 \times 10^9/l$.

Discussion

With recent advances in supportive care and blood transfusion, it is possible to manage a patient with moderately severe aplastic anaemia and severe thrombocytopenia through pregnancy. Pregnancy-associated aplastic anaemia has frequently been reported and a successful outcome is possible. These reported patients did not have platelet refractoriness, however, and were diagnosed during pregnancy. The risks of bleeding and infections are high and mortality in aplastic anaemia associated with pregnancy is more than 20%.^{4,5}

There are few reports of pregnancy in women following a diagnosis of aplastic anaemia which has not achieved a remission as contraception or termination during early pregnancy is usually advised. Thus recent literature has not reported any patients with a successful outcome. Patients who desire to have children may be offered immunosuppressive therapy (antilymphocyte globulin and/or cyclosporin) since infertility is not a complication and receive allogenic bone marrow transplantation if immunosuppressive therapy fails.

The present patient presented late during her second pregnancy and she wanted to proceed with her pregnancy despite the risks. As she had been previously transfused, platelet refractoriness was present and this was an added risk. She had one unit of aphaeresis platelet concentrate and 13 units of random donor platelet concentrates prior to and during her caesarean section. Thus, with adequate platelet transfusions, the risk of excessive bleeding due to platelet refractoriness and also thrombocytopenia was reduced. This resulted in a successful caesarean section.

Secondary bleeding is uncommon in thrombocytopenia compared to clotting factor deficiencies. Thus, she required only minimal platelet transfusions after surgery. Platelet refractoriness can be overcome using a large amount of platelets over a short period. This may not cause a sustained rise in platelets but will be adequate for surgery or an acute haemorrhage. Ideally, aphaeresis HLA-matched platelet concentrates should be used⁶ but these are not available in our hospital.

Although there is a risk of foetal thrombocytopenia due to maternal to foetal transfer of platelet antibodies,³ the newborn did not have thrombocytopenia.

During initial augmentation of labour and induction of anaesthesia, adequate analgesia is necessary as systolic hypertension resulting from pain can result in an intracranial haemorrhage when severe thrombocytopenia is present.

Infection is a major complication in aplastic anaemia and caesarean section posed a major risk for infection. The patient received antibiotics only after developing fever. In retrospect, antibiotic prophylaxis could have been instituted at the onset of labour in view of neutropenia in aplastic anaemia. The risk of infection continues to be increased in puerperium. She developed a peri-anal infection during this period.

During pregnancy, she was transfused if the haemoglobin was less than 8 g/dl, even when she was asymptomatic, to ensure normal foetal growth as maternal anaemia may contribute to intrauterine growth retardation.¹

Over the 18 months following delivery, her aplastic anaemia has worsened. She has become more transfusion dependent, needing packed red cell transfusions every two months. She has had no response to steroids nor oxymethalone

Management of aplasia during pregnancy

- advise termination if first trimester
- maintain adequate haemoglobin level, ie > 8 g/dl
- avoid platelet transfusion until delivery
- prophylactic platelet transfusion at delivery
- prophylactic antibiotics during delivery
- adequate analgesia during delivery
- assisted second stage if vaginal delivery
- postpartum period: observe for perineal infection

Box 1

Management of platelet refractoriness

- avoid further platelet transfusions unless bleeding
- use large quantities of random donor platelets when platelets required (easier option)
- use HLA matched aphaeresis platelets (requires HLA typing facilities)
- select and give platelets according to platelet cross-match. Subsequently use aphaeresis platelets from the specific donor (requires platelet cross-matching facilities)

Box 2

and had instead developed side effects to steroid therapy. Neither antilymphocyte globulin nor cyclosporin therapy have been attempted in view of the fact that the aplasia is of long standing.

Pajor *et al*³ reported no relationship between pregnancy and subsequent outcome of aplastic anaemia but all pregnancies in their four patients with active aplastic anaemia were terminated early. It would appear that in our patient, pregnancy may have contributed to the worsening of her aplastic anaemia. Postpartum stress may also have caused an increase in symptoms.

- 1 Camitta BM, Storb R, Thomas ED. Aplastic anaemia: pathogenesis, diagnosis, treatment and prognosis. *N Engl J Med* 1982; 306: 645–52, 712–8.
- 2 Bacigalupo A, Hows J, Gluckman E, *et al*. Bone marrow transplantation versus immunosuppression for the treatment of severe aplastic anaemia: a report of the EBMT SAA working party. *Br J Haematol* 1988; 70: 177–82.
- 3 Pajor A, Kelemen E, Szakacs Z, Lehoczky D. Pregnancy in idiopathic aplastic anaemia (report of 10 patients). *Eur J Obstet Gynecol Reprod Biol* 1992; 45: 19–25.
- 4 Suda T, Omine M, Tuchiya J, Maekawa T. Prognostic aspects of aplastic anaemia. Experience on six cases and review of the literature. *Blut* 1978; 36: 285–98.

Conclusion

Pregnancy following a diagnosis of idiopathic aplastic anaemia is not advisable due to the risk of infection and bleeding and platelet refractoriness. Contraception and termination of early pregnancy should continue to be recommended. In the event of a presentation during late pregnancy, as in this patient, recent advances in supportive care and transfusion medicine may, however, lead to a successful outcome.

- 5 Aitchison RG, Marsh JC, Hows JM, Russel NH, Gordon S. Pregnancy associated with aplastic anaemia: a report of five cases and review of current management. *Br J Haematol* 1989; 73: 541–5.
- 6 McFarland JG, Anderson AJ, Slichter SJ. Factors influencing the transfusion response to HLA-selected apheresis donor platelets in patients refractory to random platelet concentrates. *Br J Haematol* 1989; 73: 380–6.

Systemic lupus erythematosus presenting as effuso-constrictive pericarditis

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Summary

We describe a 62-year-old woman in whom systemic lupus erythematosus presented as life-threatening effuso-constrictive pericarditis. Surgical drainage of the pericardium was required and the patient made a satisfactory recovery. At six-months follow-up, while taking hydroxychloroquine and a non-steroidal anti-inflammatory agent, she remains well.

Keywords: systemic lupus erythematosus, pericarditis

Case report

A 62-year-old woman was admitted with a six-day history of flu-like symptoms and pleuritic-type central chest discomfort. Past history included goitre and a septicemic illness several years ago. One year prior to this admission she had suffered an episode of dizziness and tinnitus, thought to be a cerebral transient ischaemia attack, for which she was taking aspirin. She had required antidepressant drug therapy for the past four years following the death of her husband.

On examination she appeared gravely ill, apyrexia, cold and clammy with poorly perfused peripheries. Her heart rate was 130 beats/min (sinus tachycardia) and her systolic blood

pressure was 90 mmHg. Jugular venous pressure was elevated. Two heart sounds were normal and examination of chest and abdomen was normal. Chest X-ray revealed cardiomegaly. The ECG showed reduced voltages with ST segment elevation in the anterior and lateral leads (figure 1). Trans-thoracic echocardiography showed a 1.5 cm pericardial effusion. The working diagnosis was extensive acute anterolateral myocardial infarction with subacute rupture.

Emergency cardiac catheterisation was carried out in order to confirm this diagnosis. Surprisingly, the coronary arteries were normal and there were no regional wall movement

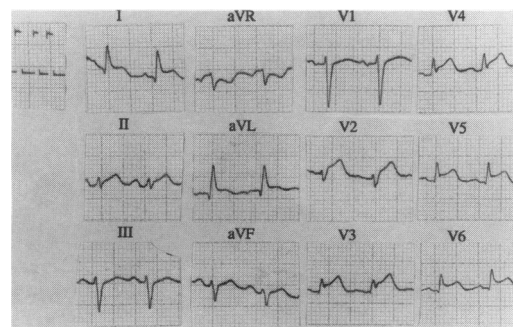


Figure 1 Electrocardiogram demonstrating ST segment elevation in leads I, II, aVL, and V2–V6

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