Journal of Case Reports and Studies
Volume 2 | Issue 3
ISSN: 2348-9820

Case Report Open Access

Unusual Presentation of CML in Pregnancy

Haritha S* and Reddi RP

Department of Obstetrics and Gynaecology, JIPMER, Pondicherry, India

***Corresponding author:** Sagili H, Department of Obstetrics and Gynaecology, JIPMER, Pondicherry, India, Tel: 0091-413-2203215, Fax: 0091-413-2272735, E-mail: harithasagili@googlemail.com

Citation: Sagili H, Reddi RP (2014) Unusual Presentation of CML in Pregnancy. J Case Rep Stud 2(3): 302. doi: 10.15744/2348-9820.1.602

Received Date: April 21, 2014 **Accepted Date:** June 19, 2014 **Published Date:** June 20, 2014

Abstract

Background: Leukemia during pregnancy is rare, posing a complex series of questions, including appropriate therapy and maternal counseling. Management of chronic myelocytic leukemia (CML) during pregnancy is limited.

Case: Our patient presented at 33 weeks of gestation with antepartum haemorrhage due to abruptio placentae. On examination there was massive splenomegaly and peripheral smear showed marked leukocytosis suggestive of CML. She delivered a live, preterm baby weighing 1.54 kg. Post delivery therapy included imatinib mesylate and she responded well to treatment.

Conclusions: Definitive treatment of CML should not be delayed due to pregnancy.

Keywords: CML; Abruptio placentae

Case report

A 30 year old primigravida was admitted to our hospital with antepartum haemorrhage at 33 weeks of gestation. On examination she was anaemic and had a blood pressure of 160/100mmHg. Abdominal examination revealed massive splenomegaly and live intrauterine foetus with fundal height corresponding to 32 weeks with a tense and tender uterus classical of abruption and she was in active labour. Her peripheral smear revealed a haemoglobin of 4.5gm/dL with marked leukocytosis with 54% neutrophils, (6% blasts, 4% promyelocytes, 15% myelocytes, 10% metamyelocytes) and 8% basophils; a picture suggestive of chronic myelogenous leukaemia (CML). Her liver and renal function tests were normal. She had an INR of 2.94 at admission which was corrected with fresh frozen plasma transfusion. Her anaemic status was corrected with 2 units of packed cell transfusion. With oxytocin augmentation she delivered a live, preterm baby of 30 weeks maturity weighing 1.54 kg which was shifted to nursery for preterm care. Her postnatal period was complicated by the development of an infralevator hematoma which was drained. Her blood pressure in the post natal period was controlled with calcium channel blockers. She otherwise remained stable. Bone marrow aspiration and biopsy were carried out on the fifth post natal day. It showed a hypercellular marrow with florid myeloid hyperplasia. Myeloid to erythroid ratio was found to be 30:1. This picture was consistent with the diagnosis of CML. She was started on Imatinib and is being followed up in our hematology clinic.

Discussion

Chronic myelogenous leukaemia (CML) is a myeloproliferative disorder with clonal expansion of transformed primitive hematopoietic progenitor cells. It affects predominantly older individuals, although all age groups may be affected. The coincidence of CML and pregnancy is an uncommon event, in part because CML occurs mostly in older age groups. CML presenting for the first time in pregnancy is less common in the developed world but is still a distinct possibility in the developing world due to the lack of basic health services not reaching the peripheries. The incidence of chronic myeloid leukaemia (CML) associated with pregnancy is rare and estimated to be 1/100000 [1].

This disorder usually presents with nonspecific symptoms like easy fatiguability and malaise which generally gets attributed to pregnancy. Most of the cases reported in literature were diagnosed prior to pregnancy. This is the first case who presented with abruptio placentae and massive splenomegaly.

CML is often suspected such as in this case on the basis of complete blood count, which shows increased granulocytes of all types, typically mature myeloid cells. Basophils and eosinophils are almost universally increased. This myeloproliferative disorder gets incidentally diagnosed in pregnancy either during the evaluation for hepatosplenomegaly or in a routine peripheral smear that is done during pregnancy. Definite diagnosis of CML is made by detecting the Philadelphia chromosome through various techniques like routine cytogenetics, fluorescent in situ hybridization, or by PCR for the bcr-abl fusion gene. CML is often divided into three phases based on clinical characteristics and laboratory findings. In the absence of intervention, CML typically begins in the chronic phase, and over the course of several years progresses to an accelerated phase and ultimately to a blast crisis. Blast crisis is the terminal phase of CML and clinically behaves like an acute leukaemia.

Though pregnancy does not appear to affect the course of CML, there is still a risk of low birth weight babies, fetal prematurity and increased maternal /perinatal mortality if CML is left untreated for the duration of the pregnancy. The common denominator

for all these obstetric complications is placental insufficiency which results due to the leukostasis resulting from the uncontrolled myeloproliferation seen in CML [2]. This can happen in any phase of CML, be it chronic or accelerated or blast crisis phase.

The management of CML during pregnancy is a difficult problem because of the potential effects of the therapy on the mother and fetus. The treatment options in pregnancy are leukapheresis [3], hydroxyurea [4], alpha interferon [5], tyrosine kinase inhibitors like imatinib mesylate [6], dasatinib [7] and recently nilotinib [8] have been used with successful pregnancy outcomes. Tyrosine kinase inhibitors induce dramatic hematologic and cytogenetic responses in CML but its safety in pregnancy is limited to a few case reports. Our patient was started on imatinib and on follow up, mother and baby are doing well. In light of reported cases and their experience, treatment of CML during the second and third trimesters of gestation and breast feeding seems to be safe, but the data are still limited and the effects of chronic exposure of infants to imatinib are not known. Multimodal therapy using a combination of leukapheresis, alpha interferon and imatinib has been tried with successful pregnancy outcome [9]. Close observation without active intervention has also been described in selected patients have minimal clinical manifestations of CML [10]. Management options for CML in pregnancy is summarised in Table 1. We conclude that each case should be examined and considered independently, and decisions should be individualized as data on management in pregnancy is limited.

Prior to conception	Interferon(IFN)
1st and 2nd trimester	Low dose IFN 3× 3Mill IU/week Adjusted to cell counts and tolerability Avoid PEG-IFN Leukapheresis in case of high leukocytes
3rd trimester	IFN Hydroxyurea if loss of hematologic response
Breast feeding	IFN

Table 1: Management of CML in Pregnancy [11].

References

1. Lichtman M, Liesveld J (2001) Acute myelogenous leukaemia: Williams Hematology, 6th edn, McGraw-Hill, New York, USA.

2. Juárez S, Cuadrado Pastor JM, Feliu J, González Barón M, Ordóñez A, et al. (1988) Association of leukemia and pregnancy: clinical and obstetric aspects. Am J Clin Oncol 11: 159-65.

3. Bazarbashi MS, Smith MR, Karanes C, Zielinski I, Bishop CR (1991) Successful management of Ph chromosome chronic myelogenous leukemia with leukapheresis during pregnancy. Am J Hematol 38: 235-7.

4. Celiloglu M, Altunyurt S, Unbar B (2000) Hydroxyurea treatment for chronic myeloid leukaemia during pregnancy. Acta Obstet Gynecol Scand 79: 803–4.

5. Mubarak AA, Kakil IR, Awidi A, Al-Homsi U, Fawzi Z, et al. (2002) Normal outcome of pregnancy in chronic myeloid leukemia treated with interferon-alpha in 1st trimester: report of 3 cases and review of the literature. Am J Hematol 69: 115-8.

6. Ali R, Ozkalemkas F, Kimya Y, Koksal N, Ozkocaman V, et al. (2009) Imatinib use during pregnancy and breast feeding: a case report and review of the literature. Arch Gynecol Obstet 280: 169-75.

7. Conchon M, Sanabani SS, Serpa M, Novaes MM, Nardinelli L, et al. (2010) Successful Pregnancy and Delivery in a Patient with Chronic Myeloid Leukemia while on DasatinibTherapy. Adv Hematol 2010: 136252.

8. Conchon M, Sanabani SS, Bendit I, Santos FM, Serpa M, et al. (2009) Two successful pregnancies in a woman with chronic myeloid leukaemia exposed to nilotinib during the first trimester of her second pregnancy: case study. J Hematol Oncol 2: 42.

9. Eskander RN, Tarsa M, Herbst KD, Kelly TF (2011) Chronic myelocytic leukemia in pregnancy: a case report describing successful treatment using multimodal therapy. J Obstet Gynaecol Res 37: 1731-3.

10. Cole S, Kantarjian H, Ault P, Cortés JE (2009) Successful completion of pregnancy in a patient with chronic myeloid leukemia without active intervention: a case report and review of the literature. Clin Lymphoma Myeloma 9: 324-7.

11. Andreas Hochhaus (2011) Educational Session: Managing Chronic Myeloid Leukemia as a Chronic Disease. Hematology Am Soc Hematol Educ Program 2011: 128-35.