

JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH

How to cite this article:

PAILOOR K, FERNANDES H, JAYAPRAKASH CS, MARLA N J, MURALI KESHAVA S. ACUTE LEUKEMIA DURING PREGNANCY - A CASE REPORT. *Journal of Clinical and Diagnostic Research* [serial online] 2010 August [cited: 2010 August 31]; 4:2922-2924.

Available from

http://www.jcdr.in/article_fulltext.asp?issn=0973-709x&year=2010&volume=&issue=&page=&issn=0973-709x&id=856

Case Report

Acute Leukemia During Pregnancy – A Case Report

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ABSTRACT

Pregnancy complicated with leukemia is rare. Here, we report a case of a 33 year old pregnant lady, who came for a routine ante -natal checkup with symptoms of anemia and fever but later was surprisingly diagnosed to be suffering from acute myeloid leukemia.

Key Words: Acute leukemia, Pregnancy, Acute myeloid leukemia, Chemotherapy

Key Message: Acute leukemia during pregnancy is very rare. An early checkup including bone marrow examination should be carried out for unexplained anemia during pregnancy.

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Introduction

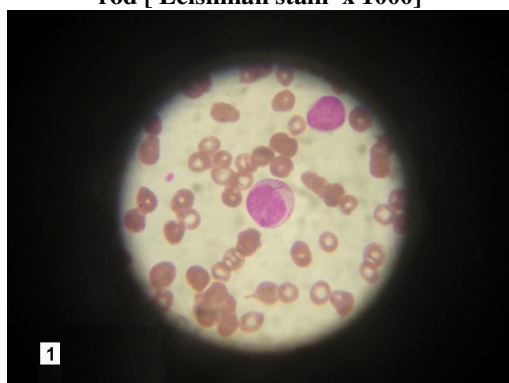
The incidence of leukemia during pregnancy is low. The relatively small number of women diagnosed in this situation makes it difficult to produce absolutely reliable statistics. Diagnosis during pregnancy is made most frequently in the second and third trimester, although the disease may have been present earlier. Herein, we report a rare case of acute leukemia during pregnancy, diagnosed in the late first trimester.

CASE HISTORY:

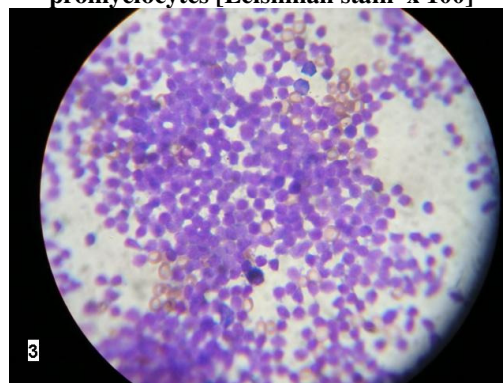
A 33 year old woman, gravida two, para one, living one, presented at 11 weeks of gestation with one month history of palpitation, dyspnoea and vertigo and a week's history of fever. On examination, she had marked pallor and mild hepatosplenomegaly. On investigation, her complete blood hemogram was as follows: hemoglobin - 6.7g/dl, total leucocyte count – $3.8 \times 10^9/l$, differential count - neutrophils 28%, lymphocytes 42%, eosinophils 01%, monocytes 02%, blasts 27%. Two nucleated RBCs/100 WBCs were also seen. Her peripheral blood film showed normocytic normochromic RBCs with occasional nucleated RBCs and 27% blasts. The corrected reticulocyte count was 0.5%. Platelet count had reduced visibly [$15 \times 10^9/l$]. Her erythrocyte sedimentation rate was 90mm/1st hour. Her biochemical analysis showed elevated enzyme levels such as lactate aminotransferase 550IU/l, aspartate aminotransferase 64IU/l and alanine aminotransferase 99IU/l. Other biochemical parameters such as random blood sugar, serum creatinine, serum uric acid, total bilirubin and alkaline

phosphatase were all within normal limits. Her prothrombin time was also within normal limits. Bone marrow aspiration showed myeloblasts – 71% [Table/Fig 2], promyelocytes – 04%, myelocytes – 03%, neutrophils – 12% and cells of monocytic lineage – 11%. Myeloblasts showed myeloperoxidase positivity. Myeloblasts had scant cytoplasm with round to oval nuclei and showed one to two prominent nucleoli. Based on these morphological and cytochemical features, she was diagnosed to have acute myeloid leukemia with maturation [FAB – AML – M2]. She received five units of packed cells and three units of platelet rich plasma following which her hemoglobin and platelet count were slightly elevated. She was advised to terminate her pregnancy as she was in her late first trimester. She underwent therapeutic abortion and received induction chemotherapy [daunorubicin and cytosar]. She has achieved complete remission and then she received further consolidation of chemotherapy. Her hemoglobin has improved to 11gm/dl and total leucocyte count - $3.5 \times 10^9 / l$ with the absence of blasts. Repeat bone marrow aspiration showed a regenerating marrow with normal precursors.

(Table/Fig 1) Peripheral smear showing a myeloblast and a promyelocyte with Auer rod [Leishman stain x 1000]



(Table/Fig 2) Bone marrow smear showing numerous myeloblasts with a few promyelocytes [Leishman stain x 100]



DISCUSSION:

Occurrence of leukemia in a pregnant patient is a rare event, with an estimated frequency of 1 in 75,000 to 100,000[2],[3],[4],[5]. As the incidence is very low, the management is exceedingly difficult [1],[6]. Acute leukemia in pregnancy should be treated at the earliest as its may result in complete remission in 76% of such patients [6].

The incidence of acute myeloid leukemia is approximately 2.3 per one lakh per year. There has been no significant change in its incidence over the past 20 years [6]. Acute myeloid leukemia with maturation [FAB – AML – M2] comprises about 5 to 10% of all acute myeloid leukemia [7]. Patients with AML present,non-specific symptoms which are the consequence of anemia, leucocytosis, leucopenia or leucocyte dysfunction or thrombocytopenia [6].

Our patient presented symptoms of analysis. Further confirmation with immunophenotyping could not be done as the patient could not afford.

The first publication of acute leukemia during pregnancy was made by Virchow in 1845. AML accounts for about two-thirds of leukemias that are seen during pregnancy and the diagnosis generally is made during

the second and third trimester, although the disease may have been present earlier [1], [2], [5]. This is because the early symptoms are non-specific [1],[5].

Leukemia in pregnancy offers a unique management dilemma and should be managed jointly between the hematologist and the obstetrician with full involvement of the mother. Acute leukemia is invariably fatal and without aggressive treatment with cytotoxic drugs, the disease is characterized by rapid deterioration and death within weeks of diagnosis. Intrauterine growth retardation, pre-term labour, spontaneous abortion and stillbirths are common in acute leukemia without treatment [1]. Childbirth in a state of granulocytopenia and thrombocytopenia may be disaster for the mother [8]. Delays or modification in therapy to ensure the birth of a healthy infant may affect the maternal prognosis adversely [5],[9]

The risk of malformation in the first trimester is as high as 17% especially with folate antagonists[1],[5],[9] Therapeutic abortion should be considered in early gestation because of the risk of teratogenesis[1],[5]. As our patient was in her late first trimester of her pregnancy, she was advised to undergo therapeutic abortion.

In conclusion, acute leukemia during pregnancy is very rare and is diagnosed most frequently in the second and third trimester, as the symptoms are non-specific.

In our case, it was diagnosed in the late first trimester as early workup for anemia during pregnancy was done. This emphasizes the importance of carrying out proper investigations including bone marrow examination for unexplained anemia during pregnancy[1]. Also it brings about greater challenges like decision on chemotherapy and continuation of pregnancy.

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