



Case Report

Acute Leukemia in 1st Trimester of Pregnancy: A Rare Presentation

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ABSTRACT

The occurrence of acute leukemia in pregnancy is a daunting experience for the patient, the obstetrician and for the oncologist owing to its severity leading to high morbidity & mortality. Reported incidence of leukemia in pregnancy is 1 in 1, 00,000 pregnancies¹. Acute leukemia in pregnancy carries a worse prognosis as compared to chronic myeloid leukemia in pregnancy. The patient generally presents with nonspecific complaints like nausea, vomiting, dyspnea which can be attributed to the ongoing pregnancy & hence ignored. Acute leukemias are diagnosed more frequently in later stages of pregnancy. Those presenting in 1st trimester, are advised therapeutic abortion. Patients presenting in 2nd & 3rd trimester are started on chemotherapy along with continuation of pregnancy with regular follow up & delivered, once viability of the baby is completed. Regular & proper ante natal care (ANC) comprising of proper haematological investigations is of prime importance.

Herein we report a case of a 24 years G₃ P₂ L₂ A₀ female who presented with nausea and vomiting in her 1st trimester & incidentally found to have Acute Myeloid Leukemia on routine haematological investigation. The previous two pregnancies were uneventful. This explains the need of regular and dedicated ANC & routine haematological investigations in pregnancy.

Keywords: Acute leukemia, pregnancy, chemotherapy, Haematological investigations.

INTRODUCTION

A hematological malignancy during pregnancy is an extremely rare finding and is difficult in terms of management for the patient, family and the physician. Its occurrence presents a complex therapeutic dilemma for the patient as well as for the treating physician. The annual incidence of leukemia in pregnant women has been estimated to be 1/ 1, 00,000 pregnancies¹. To the best of our knowledge approximately 500 cases of leukemia has been reported in literature till date. ^[1]

The treatment of leukemia in pregnancy may lead to fetal death or malformations. Chemotherapy during the 1st trimester is associated with increased risk of congenital malformations. ^[2]

Herein we report a case of acute myeloid leukemia diagnosed in the 1st trimester of a 24 years multigravida with two previous normal deliveries.

CASE REPORT

A 24 years G₃ P₂ L₂ A₀ old lady presented the obstetric OPD with 2 & ½

months amenorrhea along with vomiting, nausea and epigastric bloating since 2 months. Her previous obstetric history was unremarkable. Both her children were healthy. A pregnancy test was performed which was confirmed on USG. Per-abdominal examination revealed non-tender mild splenomegaly (2 cm below costal margin). Uterine fundus corresponded to the period of amenorrhoea. No hepatomegaly was noted.

On routine haematological investigations, her total leukocyte count was 1,74,510/cumm and platelets were

60,000/cumm. On peripheral blood smear examination, 75% blasts showing large, round to oval nuclei and opened up chromatin with two or more prominent nucleoli were noted along with few mature forms of myeloid series (Figure 1, 2). Bone marrow aspiration was performed which revealed 85% blasts with cells showing large, round nuclei having opened up chromatin and 2-3 prominent nucleoli & scant amount of cytoplasm (Figure 3, 4). At places nuclear indentation, grooving and folding were noted.

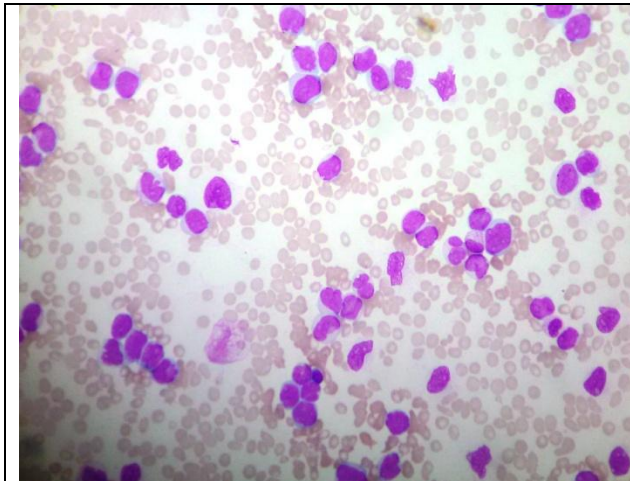


Figure 1: Peripheral blood smear showing numerous blasts in a single high power field. (Leishman stain, 400x)

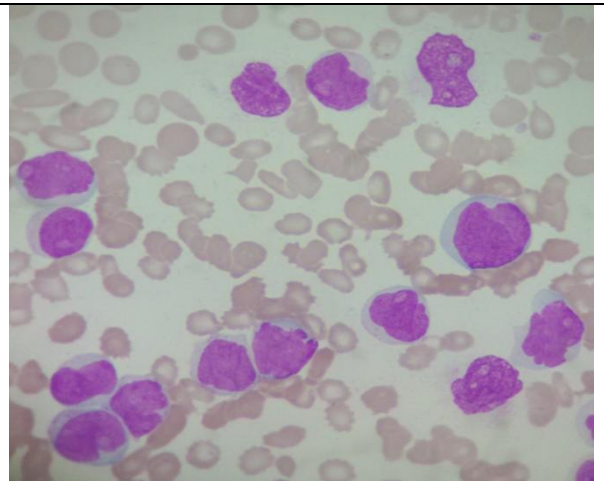


Figure 2: Oil immersion view of peripheral blood smear showing large blasts with round to oval nuclei and 2-3 prominent nucleoli. (Leishman stain, 1000x)

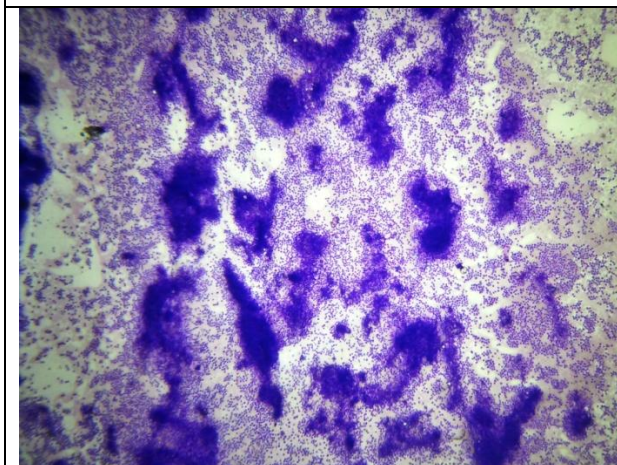


Figure 3: Bone marrow aspiration smear showing hypercellular marrow. (Geimsa, 100x)

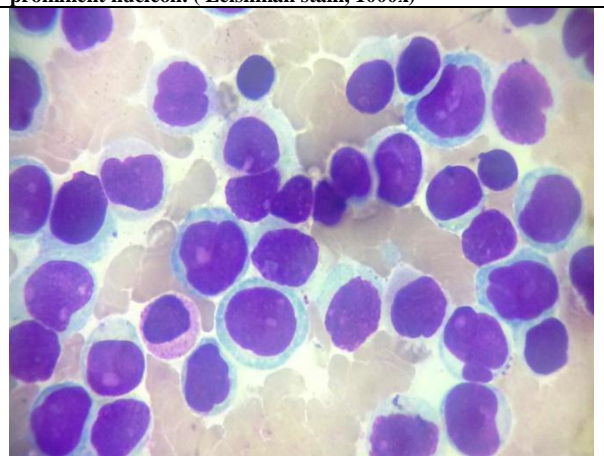


Figure 4: Oil immersion view of the bone marrow smear showing marrow filled with myeloid blasts. (Geimsa, 1000x)

Based on the peripheral smear and bone marrow findings, a diagnosis of acute myeloid leukemia suggestive of AML- M₄ was given & the blood was sent for immunophenotyping. On immunophenotyping blast cells showed positivity for CD11b, CD13, CD33, CD34, CD64 and HLA-DR. Monocytoid cells expressed CD11b, CD33, CD64 and HLA-DR, thereby confirming the diagnosis. She was then referred to the Radiotherapy department for further management.

DISCUSSION

Leukemia in pregnancy was initially diagnosed by Virchow in 1845. [1,2] Myeloid leukemias are more commonly encountered than lymphoblastic leukemias. Chronic Myeloid Leukemia is found in less than 10% of the leukemias in pregnancy; however Chronic Lymphocytic Leukemia is extremely rare. [3] The diagnosis of leukemia in pregnancy is generally confirmed in 2nd and 3rd trimester even though the disease may be present earlier. This could be due to signs & symptoms such as weakness, fatigue, pallor, dyspnea which could be attributed to the pregnancy & hence ignored.

Our case was an incidental finding as the patient presented for a regular antenatal check up. This shows the importance of regular hematological, biochemical & radiological investigations during antenatal period. Dreaded as it is, acute leukemia is invariably fatal without aggressive treatment with appropriate drug regimen. In untreated cases, the patient deteriorates rapidly and within short period of diagnosis, death is inevitable.

Spontaneous abortion, preterm labour, still births and IUGR are common outcomes in a pregnant lady with acute leukemia not on treatment. First trimester is generally marked by greater number of spontaneous abortions. Fetal loss occurs in 33% of pregnant woman with leukemia. [3]

A considerable number of women (20-30 %) succumb before 9 months whereas in those who complete their term, fetal mortality is very high approximately 50 %. [3] Chemotherapy in the 1st trimester is highly teratogenic according to the recent studies as mentioned in the study by AJM Saleh et al [1] and Cardonick E et al. [4] Woman in the 2nd and 3rd trimester are advised chemotherapy, delivery should be planned in between 32-36 weeks. In cases of AML-M₃, chemotherapy by All-Trans-Retinoic-Acid (ATRA) during 2nd and 3rd trimester is relatively safe due to high molecular weight of more than 500 Daltons, also incomplete placental transfer of these drugs plays a role. Woman receiving chemotherapy during pregnancy has a small risk of fetal malformations. According to Vladareanu AM et al, 7-10% cases present with fetal abnormalities. [5] Although the long term outcome of pregnancy receiving single chemotherapeutic regimen is generally good. [5] Malformations occur during 2nd to 8th week of fetal organogenesis in women receiving chemotherapy. [6]

Whatever said and done, acute leukemia in pregnancy if diagnosed in 1st trimester should be treated as non pregnant case and treated with the active regimen at the earliest and aggressively, Woman in the 2nd and 3rd trimester have a chance to retain their pregnancy and hope for a normal delivery post chemotherapy. [5]

CONCLUSION

Acute leukemia (myeloid or lymphoid) both carry a considerable risk of morbidity as well as mortality in both the mother as well the child. Hence early diagnosis by proper and routine haematological investigations supported by Bone Marrow aspiration and / or Biopsy if required, immunophenotyping & cytogenetics is advisable in this situation. Therapeutic abortion is recommended

treatment in acute leukemia diagnosed in 1st trimester of pregnancy and patient has to be given regular chemotherapy. However, cases diagnosed in later trimester can be managed by single or multidrug chemotherapy with regular follow up and close monitoring with continuation of pregnancy.

REFERENCES

1. AJM Saleh, Ayman Alhejazi, Syed Osman Ahmed et al. Leukemia during pregnancy: Long term follow up of 32 cases from a single institution. *Hematol Oncol Stem Cell Ther* 2014; 7(2): 63-68.
2. Virchow R. Die leukämie. In: Virchow R, editor. *Gesammelte abhandlungen zur wissenschaft lichen medicin*. Frankfurt Meidinger; 1856. p. 190–211.
3. Al Sabty Firas, Demckova E, Mistrik M. Leukemia in pregnancy: *Bratisl Lek Listy* 2008; 109 (8): 364-366.
4. Cardonick E, Lacobucci A. Use of chemotherapy during human pregnancy. *Lancet Oncol* 2004;5:283-291.
5. Vladareanu AM, Viola Popov, Veronica Vasilache et al. Leukemia and pregnancy. No longer a dangerous liaison?- Case report and review of literature. *Gynaecol Perinatol* 2008; 17 (2); 94-100.
6. Shapira Tal, Pereg David, Lishner Michael. How I treat acute and chronic leukemia in pregnancy. *Blood Reviews* 2008; 22: 247-259.

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