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Pathology

A De-novo Case of Philadelphia Chromosome Positive B-Cell Acute Lymphoblastic Leukaemia in Elderly with Past History of Endometrial Carcinoma

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Abstract **Case Report**

Introduction: Philadelphia chromosome is well-known chromosomal abnormality in Chronic Myeloid Leukaemia (CML). However, B-acute lymphoblastic leukemia (B-ALL) with Philadelphia-positive (Ph′+) is a neoplasm of lymphoblast committed to the B-cell lineage, occurs in about 20 % to 30 % of all cases in adults. The incidence increases with age, up to 50 % of ALL diagnosed in individual's ≥50 years old. The clinical presentation of B-ALL Ph′+ is similar to B-ALL but is more common in adults than in children. ***Case Report***: A 64 year-old female patient presented to Medicine OPD with complaints of fever, weakness and uneasiness, along with old history of endometrial carcinoma. She was further investigated and diagnosed as De-novo case of B-precursor ALL with positive BCR-ABL fusion gene as no chemotherapy was given for previously reported malignancy. ***Conclusion*:** Here, we like to emphasize that overlapping symptoms may lead to delay in diagnosis. Hence, clinician should always investigate the patient thoroughly, in order to diagnose the patient on time. So that, treatment can be started as early as possible to avoid fatal outcomes in Ph′ Chromosome positive B cell ALL, as it has worst prognosis.

Keywords: Philadelphia positive, acute lymphoblastic leukemia & elderly Female.

INTRODUCTION

Acute lymphoblastic leukemia (ALL) is a neoplastic disease of immature lymphocytes or lymphocyte progenitor cells of either the B- or T-cell lineage. About 60–85% of all leukemias are reported as ALL [1]. In adults, 85% of cases develop from precursors of the B-cell lineage, with the remainder having a T-cell phenotype [2]. Philadelphia chromosome is well-known chromosomal abnormality in chronic myeloid leukemia (CML). However, B-acute lymphoblastic leukemia (B-ALL) with Philadelphia-positive (Ph′) is a neoplasm of lymphoblast committed to the B-cell lineage. The Philadelphia chromosome (Ph) positive ALL occurs in about 20% to 30% of all cases in adults B-ALL [3-5], the incidence increases with age up to 50 % of ALL diagnosed in individuals' ≥50 years old [6, 7]. The clinical presentation of B-ALL Ph′+ is similar to B-ALL but is more common in adults than in children. It results from a reciprocal translocation between the ABL-1 oncogene on the long arm of chromosome 9 and a breakpoint cluster region (BCR) on the long arm of chromosome 22, resulting in a fusion gene BCR-ABL, that encodes an oncogenic protein with constitutively active tyrosine kinase activity [8]. Patients with Ph-positive ALL have an increased risk for central nervous system (CNS) involvement and an aggressive clinical course. Historically, they had an inferior outcome when compared with their Ph-negative counterparts [9, 10]. The aim of this article is to report a very unusual presentation of a de novo case of ALL in an elderly female who visited hospital with complain of fever and uneasiness with past history of carcinoma endometrium.

CASE REPORT

A 64 year-old Female presented with complaints of Fever, generalized weakness, uneasiness since 4-5 days. Patient was admitted to hospital and hyponatremia was found on routine investigation. There were no significant radiological findings on USG abdomen. All the relevant hematological and biochemical investigations were repeatedly performed

during hospitalization as fever did not subside and results were as follows:

Hemoglobin: 12.2 g%

Total leukocyte count: 13500/cumm

Differential Count:
Blasts –15%
Large Atypical cells-20 %,
Neutrophils-1%,
Lymphocytes-40%
Monocytes -08%,
Eosinophils- 02

Platelets: 42,000/ cu.mm

No Auer rods were seen. On light microscopic examination, provisional diagnosis of acute leukemia/lymphoma was made. The patient was referred to haematologist and advised for bone marrow examination, flowcytometry and molecular work-up to confirm diagnosis and categorization.

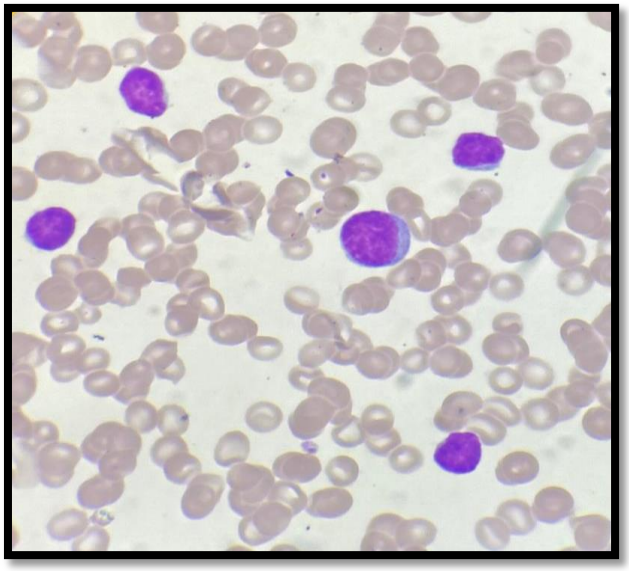


Figure 1: Peripheral Blood Smear showing Blast cells with high N:C ratio, nucleus having open chromation, nucleoli and scant cytoplasm

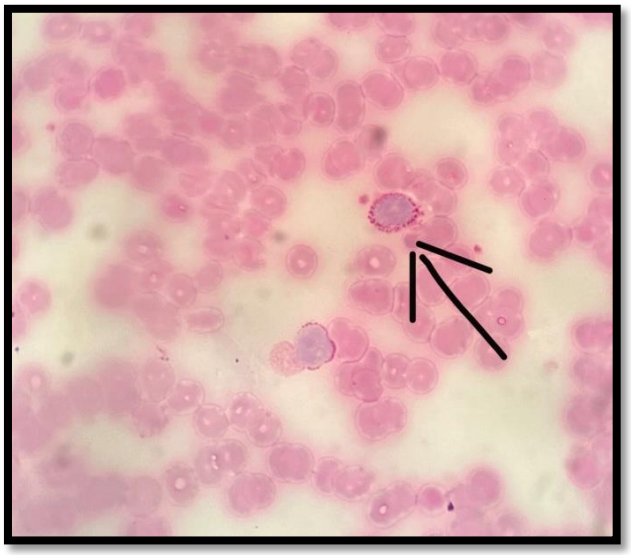


Figure 2: PAS Stain Smear: PAS Positive cel

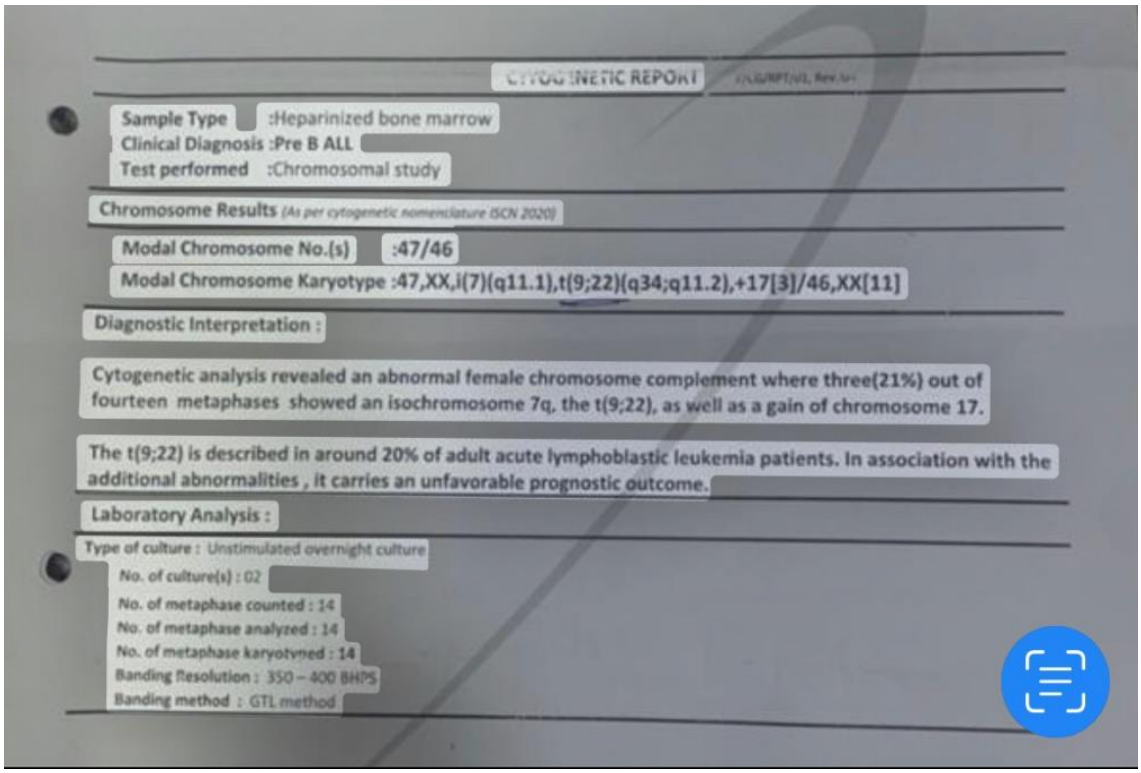
Bone Marrow Examination

Bone marrow aspiration: Moderate to Markedly Hypercellular marrow: Diffuse marked infiltrate of medium sized immature- looking cells with round to indented nuclei, fine chromatin, inconspicuous nucleoli, and scanty cytoplasm – compatible with Acute Leukemia.

Flow Cytometry:

Markers	Positive	Negative
B/Plasma cell	*CD19, CD10, , cytoCD79a, cytoCD22,*	*CD20*
T/NK cell	-	*CD3 (surface and cytoplasmic), CD4, CD5, CD7, CD8*
Myeloid	*CD33*	*CD13, CD117, CD14, CD64, CD36, CD15, cytoCD41*
Other	*CD34 (heterogeneous), HLA-DR, CD38., CD45*	*CD123*

Cytogenetic Report:



Modal chromosome Karyotype:
47,XX,i(7)(q11.1).**t(9;22)**9q34:q11.2),+17(3)/46,xx(11)

Old History

Patient was diagnosed as Moderately differentiated Endometroid endometrial adenocarcinoma Grade II in 2018 June. Hysterectomy with Bilateral oopherectomy and pelvic node dissection was done. No metastatsis detected. Post-operative Anastrozole was given for one and half year. No Chemotherapy and Oral Treatment were given. This confirms de novo ALL case.

DISCUSSION

Available data on ALL in older patients are relatively sparse. One population-based registry reported that 31% of all cases occurred in patients 60 years or older although ALL is most common malignant disease in childhood while it is rare in adults [11] Here, we had presented a case of 64-year-old female.

Most of patients with B-ALL present with evidence of bone marrow failure and its consequences; thrombocytopenia, anemia, and neutropenia. The leukocyte count may be decreased, normal, or markedly elevated. Lymphadenopathy, hepatomegaly, and splenomegaly are frequent. Bone pain and arthralgia may be prominent symptoms [12]. Unusual presentation about our case was that she attended medicine OPD with chief complaints of fever, uneasiness and generalized weakness and treated to correct hyponatremia. There was no evidence of any organ involvement such as hepatomegaly and lymphadenopathy. Neither the patient complained of any bone pain nor arthralgia. On complete blood count examination, Total count was borderline increased with thrombocytopenia.

B-ALL with BCR-ABL1 is relatively more common in adults than in children, accounting for about 25% of adult ALL but only 2–4% of childhood cases [12]. In our case also, the patient was 64 years female with Ph positive ALL.

CONCLUSION

We report this case with the intention of promoting greater awareness that ALL can cause significant unusual presentations without other systemic

symptoms. Patients should be thoroughly be examined and investigated for proper diagnosis; treatment can be started as early as possible to prevent fatal life-threatening complications as Ph-positive ALL has an aggressive clinical course, with a high risk of relapse despite progress in treatments.

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REFERENCES

1. Arora, R. S., Eden, T. O. B., & Kapoor, G. (2009). Epidemiology of childhood cancer in India. *Indian journal of cancer*, *46*(4), 264-273.
2. Terwilliger, T., & Abdul-Hay, M. J. B. C. J. (2017). Acute lymphoblastic leukemia: a comprehensive review and 2017 update. *Blood cancer journal*, *7*(6), e577-e577. doi: 10.1038/bcj.2017.53
3. Wetzler, M., Dodge, R. K., Mrózek, K., Carroll, A. J., Tantravahi, R., Block, A. W., ... & Bloomfield, C. D. (1999). Prospective karyotype analysis in adult acute lymphoblastic leukemia: the cancer and leukemia Group B experience. *Blood, The Journal of the American Society of Hematology*, *93*(11), 3983-3993.
4. Faderl, S., Jeha, S., & Kantarjian, H. M. (2003). The biology and therapy of adult acute lymphoblastic leukemia. *Cancer: Interdisciplinary International Journal of the American Cancer Society*, *98*(7), 1337-1354.
5. Burmeister, T., Schwartz, S., Bartram, C. R., Gökbuget, N., Hoelzer, D., & Thiel, E. (2008). Patients' age and BCR-ABL frequency in adult B-precursor ALL: a retrospective analysis from the GMALL study group. *Blood, The Journal of the American Society of Hematology*, *112*(3), 918-919.
6. Secker-Walker, L. M., Craig, J. M., Hawkins, J. M., & Hoffbrand, A. V. (1991). Philadelphia positive acute lymphoblastic leukemia in adults: age distribution, BCR breakpoint and prognostic significance. *Leukemia*, *5*(3), 196-199.
7. Pui, C. H., & Evans, W. E. (2006). Treatment of acute lymphoblastic leukemia. *New England Journal of Medicine*, *354*(2), 166-178.
8. Rowleyj, D. (1973). Letter: A new consistent chromosomal abnormality In chronic myelogenous leukaemia Identified by qUlnacnne fluorescence and Glemsa staining. *Nature*, *243*, 290-293.
9. GLEIßNER, B., Gökbuget, N., Bartram, C. R., Janssen, B., Rieder, H., Janssen, J. W., ... & German Multicenter Trials of Adult Acute Lymphoblastic Leukemia Study Group. (2002). Leading prognostic relevance of the BCR-ABL translocation in adult acute B-lineage lymphoblastic leukemia: a prospective study of the German Multicenter Trial Group and confirmed polymerase chain reaction analysis. *Blood, The Journal of the American Society of Hematology*, *99*(5), 1536-1543.
10. Vitale, A., Guarini, A., Chiaretti, S., & Foà, R. (2006). The changing scene of adult acute lymphoblastic leukemia. *Current opinion in oncology*, *18*(6), 652-659.
11. National Cancer Institute, Surveillance, Epidemiology, and End Results Program. Available from: http://www.seer.cancer. gov. [Last accessed on 2015 Jan 09].
12. Swerdlow, S. H., Campo, E., Harris, N. L., Jaffe, E. S., Pileri, S. A., & Stein, H., editors. (2017). WHO Classification of Tumors of Hematopoietic and Lymphoid Tissue. 4th ed. France: International Agency for Research on Cancer.