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Case Report

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Double Philadelphia Chromosome-Positive B Acute Lymphoblastic Leukemia

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Introduction

Philadelphia (Ph) chromosome is the derivative chromosome 22 that results from reciprocal translocation t(9;22) (q34;q11). It has been found in about 95% of chronic myeloid leukemia (CML), less often presented in acute lymphocytic leukemia (ALL, about 25% in adult and 2 - 4% in pediatrics) and occasionally observed in acute myelogenous leukemia (AML) [1]. While double Ph chromosomes can be reported in some cases of CML during blastcrisis, it is rarely reported in ALL. We present a rare case of a lady with a diagnosis of double Ph-positive B-ALL who achieved a continuous complete response after treatment with a combination of conventional chemotherapy and tyrosine kinase inhibitor (TKI) as follows.

Case Report

A 53-year-old lady was admitted to our hospital with half a month history of fever, fatigue and dizziness. Physical examination revealed palpable sternal tenderness. Peripheral blood tests showed white cell count 95.39 × 10^9/L, hemoglobin 100 g/L and platelet 18 × 10^9/L. Peripheral blood cell morphology showed: lymphoblasts 44%, immature lymphocytes 50%. Bone marrow cytology showed 98% blasts which were heterogeneous in size. Immunophenotype of the blast cells showed: CD10+, CD13+, CD19+, CD20+, CD22+, CD33+, CD34+. Chromosome analysis revealed a 47 ~ 50, XX, +5, +8, t(9;22) (q34;q11), + der(22) t (9;22) karyotype (Figure 1). In conclusion, her final diagnosis was B-ALL with double Ph chromosome. She was initially treated with conventional chemotherapy and regular intrathecal chemotherapy. As Ph chromosome was positive, imatinib was subsequently administered. She achieved a complete remission and had stayed in continuous remission for two months.

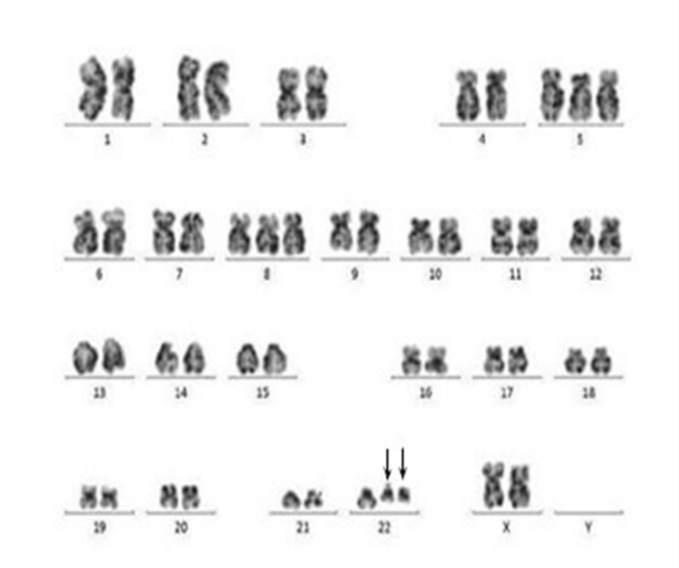

Figure 1: Karyotype of bone marrow showed 47 ~ 50, XX, +5, +8, t(9;22) (q34;q11), der(22) t(9;22). There was presence of two truncated Ph chromosomes 22 (arrows).

Discussion

Ph chromosome positive ALL is associated with a highly aggressive disease, more resistant to chemotherapy[2], and lower remission rate and shorter survival when compared with Ph chromosomenegative[3]. Affected patients usually present with signs and symptoms related to bone marrow failure. The current standard therapy for Ph chromosome-positive B-ALL ischemotherapy in addition to TKI, and allogeneic stem cell transplantation after first remission is believed to be the treatment of choice in adult Ph chromosome positive ALL, when possible[4].

Double Ph chromosome-positive B-ALL is reported in several case reports worldwide[1,5-7]. The possible mechanism of double Ph chromosome is considered to be the result of non-disjunction occurring during mitosis[1]. However, the clinical significance of double Ph chromosomes in ALL has not been known. It is reported that double Ph chromosome-positive ALL patients have lower probability of complete hematological response, shorter time to progression and inferior overall survival when compared with single Ph chromosome[8].

We describe here the rare case of an elderly female patient with double Ph chromosome-positive B-ALL who stayed in continuous complete remission for two months after initial therapy. As a whole, the case is consistent with the literature reports, but long-term efficacy needs to be further observed. Therefore, a further large number of cases are needed to probe into the clinical significance of double Ph chromosome in B-ALL.

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References

1. Tang, Y.L., Raja Sabudin, R.Z., Leong, C.F., et al. Double Philadelphia chromosome positive B acute lymphoblastic leukemia in an elderly patient. (2015) Malays J Pathol 37(3): 275-279.
PubMed | CrossRef | Others
2. Rowe, J.M., Buck, G., Burnett, A.K., et al. Induction therapy for adults with acute lymphoblastic leukemia: results of more than 1500 patients from the international ALL trial: MRC UKALL XII/ECOG E2993. (2005) Blood 106(12): 3760-3767.
PubMed | CrossRef | Others
3. Secker-Walker, L.M., Craig, J.M., Hawkins, J.M., et al. Philadelphia positive acute lymphoblastic leukemia in adults: age distribution, BCR break - point and prognostic significance. (1991) Leukemia 5(3): 196-199.
PubMed | CrossRef | Others
4. Ottmann, O.G., Wassmann, B. Treatment of Philadelphia chromosome–positive acute lymphoblastic leukemia. (2005) ASH Education Book 2005(1): 118-122.
PubMed | CrossRef | Others
5. Vaz de Campos, M.G., Chauffaille, M.L.L.F., Rodrigues, C.A., et al. A rare case of Acute Lymphocytic Leukemia (ALL) presenting with double Philadelphia chromosome - relapse or secondary leukemia? (2003) Genet Mol Biol 26(3): 249-251.
PubMed | CrossRef | Others
6. Takasaki, H., Kanamori, H., Takabayashi, M., et al. Double Philadelphia chromosomes positive acute lymphocytic leukemia. (2003) Leuk Lymphoma 44(4): 735–736.
PubMed | CrossRef | Others
7. Yahata, N., Tauchi, T., Kimura, Y., et al. Double Philadelphia chromosomes in acute lymphocytic leukemia. (2000) Cancer Genet Cytogenet 121(1): 101–102.
PubMed | CrossRef | Others
8. Wassmann, B., Pfeifer, H., Scheuring, U.J., et al. Early prediction of response in patients with relapsed or refractory Philadelphia chromosome-positive acute lymphoblastic leukemia (Ph+ALL) treated with imatinib. (2004) Blood 103(4): 1495-1498.
PubMed | CrossRef | Others