Philadelphia Chromosome Positive Precursor T Acute Lymphoblastic Leukemia

Krishnarathnam Kannan

Received: 7 November 2012 / Accepted: 27 May 2013 / Published online: 9 July 2013
© Indian Society of Haematology & Transfusion Medicine 2013

To the Editor,

26 year old male presented with generalized bulky lymphadenopathy, raised white blood cell count, anemia and thrombocytopenia in December of 2009.

The peripheral smear and bone marrow were morphologically consistent with acute lymphoblastic leukaemia. Immunophenotype showed that the blast cells were positive for CD3 and CD7. All the B lineage markers were absent. In addition the blast cells were positive for CD13 and CD 33, but negative for CD117 and cytoplasmic myeloperoxidase. Cytoplasmic CD 3 was positive. We therefore made a diagnosis of acute T lymphoblastic leukemia with aberrant myeloid antigen expression. Conventional cytogenetics showed 9;22 translocation.

Reverse transcriptase polymerase chain reaction (RT-PCR) confirmed the presence of minor BCR–ABL transcript at high levels which is shown in the Fig. 1.

T lymphoblastic leukemia with Philadelphia positivity is very rarely reported in the literature [1–4]. There is a debate whether it is de novo leukemia or blastic phase of chronic myeloid leukemia [5].

Our patient did not have a palpable spleen. Absence of splenomegaly and the presence of minor BCR–ABL transcript probably favours an acute lymphoblastic leukemia of precursor T cell lineage. The presence of aberrant myeloid markers makes our case more interesting.

The patient was treated with a combination of chemotherapy and imatinib. He achieved morphologic remission but has not achieved molecular remission and hence switched over to second line tyrosine kinase inhibitor dasatinib. There was no BCR–ABL mutation detected. Bone marrow transplantation could not be offered as the patient does not have a histocompatible sibling and an alternative donor transplantation was not feasible due to various logistic constraints.

K. Kannan (✉)
Department of Haematology, Sri Ramachandra Medical Centre,
E1 Block, Porur, Chennai 600 116, India
e-mail: krish57@hotmail.com

Fig. 1 Band at 106 bp is patient's sample which is positive for minor break point e1a2 (*lane 5*) corresponding to p190KD protein. The previous lane (*lane 4*) showing the band at 330 bp is internal control for the ABL region of the patient's sample. *Lane 1* and *Lane 3* shows 100–1000 bp DNA ladder marker. *Lane 2* shows ABL internal control for healthy sample

References

1. Graux C, Cools J, Michaux L, Vandenberghe P, Hagemeijer A (2006) Cytogenetics and molecular genetics of T-cell acute

lymphoblastic leukemia: from thymocyte to lymphoblast. *Leukemia* 20:1496–1510

2. Prebet T, Joelle Moziconacci M, Sainty D, Arnoulet C, Lafage M, Dastugue N, Charbonnier A, Coso D, Jean-Albert G, Blaise D, Vey N (2009) Presence of a minor Philadelphia-positive clone in young adults with T-cell ALL. *Leuk Lymphoma* 50:485–487
3. Cortes J, De Keersmaecker K (2009) T-cell acute lymphoblastic leukemia with a “pinch” of BCR–ABL1. *Leuk Lymphoma* 50:321–322
4. Tchirkov A, Bons JM, Chassagne J, Schoepfer C, Kanold J, Briancon G, Giollant M, Malet P, Demeocq F (1998) Molecular detection of a late-appearing BCR–ABL gene in a child with T-cell acute lymphoblastic leukemia. *Ann Haematol* 77:55–59
5. Raanani P, Trakhtenbrot L, Rechavi G, Rosenthal E, Avigdor A, Brok-Simoni F, Leiba M, Amariglio N, Nagler A, Ben-Bassat I (2005) Philadelphia-chromosome-positive T-lymphoblastic leukemia: acute leukemia or chronic myelogenous leukemia blastic crisis. *Acta Haematol* 113:181–189