A new case of t(1;11)(q21;q23) in a child with M1 ANLL

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Clinics

Age and sex
21 months old male patient.

Previous history
No preleukemia. No previous solid tumors. Inborn condition of note: Prematurity (birth at 33 weeks of gestation).

Organomegaly
No hepatomegaly, no splenomegaly, no enlarged lymph nodes.

Blood

WBC: 10.6X 10^9/l
HB: 7.1g/dl
Platelets: 71X 10^9/l
Blasts: 8%

Cyto-Pathology Classification

Cytology
Bone marrow: 84 % of blastic cells. Cytochemistry: peroxydase: 100% of positive blasts; butyrate esterase: positive in 11% of blasts.

Immunophenotype
CD13+, CD15+, CD65+, CD33+, CD117+, MPO+, MDR-, CD34-, CD36-, CD14-, CD4+, lineage B-, lineage T-.

Diagnosis
AML1 (FAB classification), LAM with 11q23 abnormalities (WHO classification).

Survival

Date of diagnosis: 04-2004
Treatment: Induction treatment including cytosine-arabinoside (200 mg/m_ D+1 to D+8) and mitoxantrone (12 mg /m_ D+1, D+2, D+3). One intrathecal injection (including methotrexate, steroids, and cytosine-arabinoside).
Complete remission: Yes
Relapse: no
Survival: 8 +months

Karyotype

Sample: Bone marrow
Culture time: 24/72 h
Banding: G and R banding
Results
46,XY,t(1;11)(q21;q23)[6]
Other molecular cytogenetics technics
Fluorescence in Situ Hybridization was performed using a MLL dual color, break apart rearrangement probe and a chromosome 1 specific labeled spectrum green painting probe (ABBOTT).

Other molecular cytogenetics results
Confirmation of MLL rearrangement by the t(1;11)(q21;q23).

Other Molecular Studies
Results:
MLL multiplex PCR [t(4;11), t(6;11), t(9;11), t(10;11), t(11;19)]: negative. ETO/AML1: negative. MYH11/CBFB: negative. FLT3 mutations research: negative.

Figure 1: Bone marrow (MGG stained): Myeloblasts with numerous azurophilic granulation and prominent nucleus.

Figure 2: Partial karyotype (R bands) showing the t(1;11)(q21;q23).

Figure 3: FISH using MLL break apart probe (A,B) and WCP 1 probe (C): partial karyotype results
Other Findings

Note:
Meningeal puncture: no blastic cells infiltration.

Comments

To our knowledge, 26 cases of translocation t(1;11)(q21;q23) (involved the genes AF1q (1q21) and MLL(11q23) have already been described in the literature. All cases were acute leukemia except for one secondary myelodysplastic syndrome. In 14 cases (57%), the translocation was the sole abnormality. The other 12 cases showed additional chromosomal abnormalities. This rare translocation is preferentially associated with AML4, AML5, or biphenotypic leukemia of infants or children. Only one case of AML M1/M2 in a 3-year-old female was reported with t(1;11)(q21;q23) as the sole karyotypic change. We present here the second case of AML1 with t(1;11)(q21;q23). The child is in complete remission at 6 months after diagnosis.

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