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Case Report Section

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t(16;21)(q24;q22) in therapy-related acute myelogenous leukemia arising from myelodysplastic syndrome

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Clinics

Age and sex: 32 years old male patient.
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Previous History : preleukemia (RAEB diagnosed in 09-2006); Hodgkin's lymphoma diagnosed in 2003.
Organomegaly : no hepatomegaly ; no splenomegaly ; enlarged lymph nodes (History of Hodgkin's lymphoma involving right side neck lymph node) ; no central nervous system involvement.

Blood

WBC: 0.29 x 10^9/l; Hb: 10.7 g/dl; platelets: 19x 10^9/l.
Bone marrow: Megakaryocytes: none noted; Blasts: 65%; Promyelocytes: 1%; Myeloid Activity: 20%, occasional dysplastic forms; Erythroid Activity: 12%, occasional dysplastic forms; Lymphocytes: 2%.

Cytopathology classification

Cytology: M2 arising from previous myelodysplastic syndrome (RAEB-1).
Immunophenotype: Population of immature cells is positive for CD34 +, CD45 (dim), HLA-DR +, CD117 +, CD13 +, and CD33+ and negative for CD15-, monocytic, B and T lymphoid markers.
Pathology: Involvement by acute myelogenous leukemia (FAB-M2) with background dysmyelopoiesis.

Survival

Date of diagnosis: Hodgkin's lymphoma: (2003); myelodysplastic syndrome: (09-2006) karyotype was not performed; therapy-related AML: (01-11-2007) karyotype showing t(16;21)
Treatment: Chemotherapy and radiotherapy; chlorambucil, Vinblastine Procarbazine, Prednisone (MOPP) until June 2004; radiotherapy in 2004; ifosfamide, carboplatin and etoposide (ICE) in August 2005; autologous bone marrow transplant in August 2006, and conditioning regimen consisted of Cytoxan, BCNU and etoposide. Induction therapy in January 2007 (16-01-07) and preparation for second transplant.
Complete remission was obtained
Comments : bone marrow biopsy performed on 03-01-2007 showing no evidence of leukemia and 2% of blast. Karyotype performed on bone marrow aspirate was interpreted as 46, XY in 20 metaphases.
Relapse: -
Status: Alive 03-2007

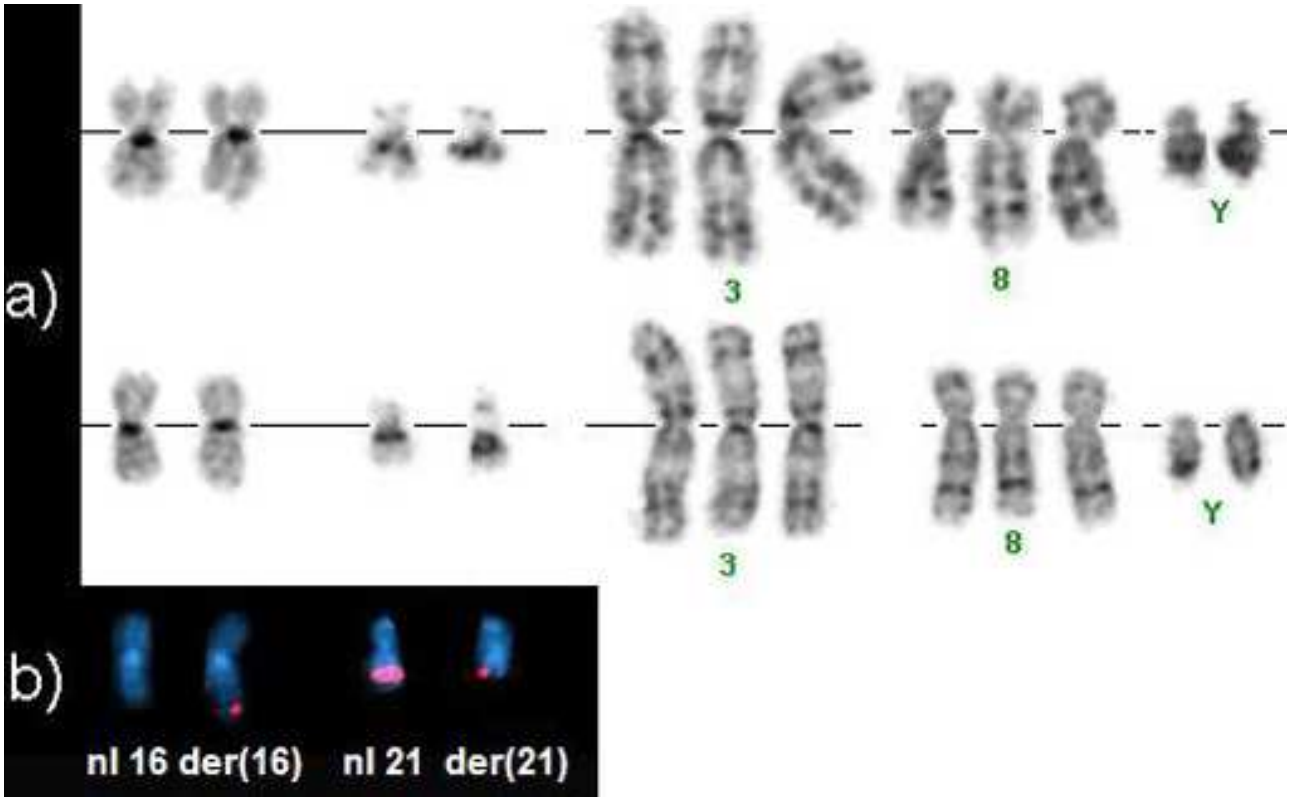
Karyotype

Sample: Bone marrow aspirate; Culture time: 24h; Banding: GTG.
Results:
49,XY,+Y,+3,+8,t(16;21)(q24;q22)[18]/46,XY[2]
Other molecular cytogenetic technics: FISH evaluation for AML1 rearrangement was performed on abnormal metaphases with the LSI TEL/AML1 ES Dual Color Translocation Probe (Abbott Molecular/Vysis, Inc.).
Other molecular cytogenetics results: Ish der(16)(dimAML1+), der(21)(dimAML1+)[5/5] (see Fig. 2).

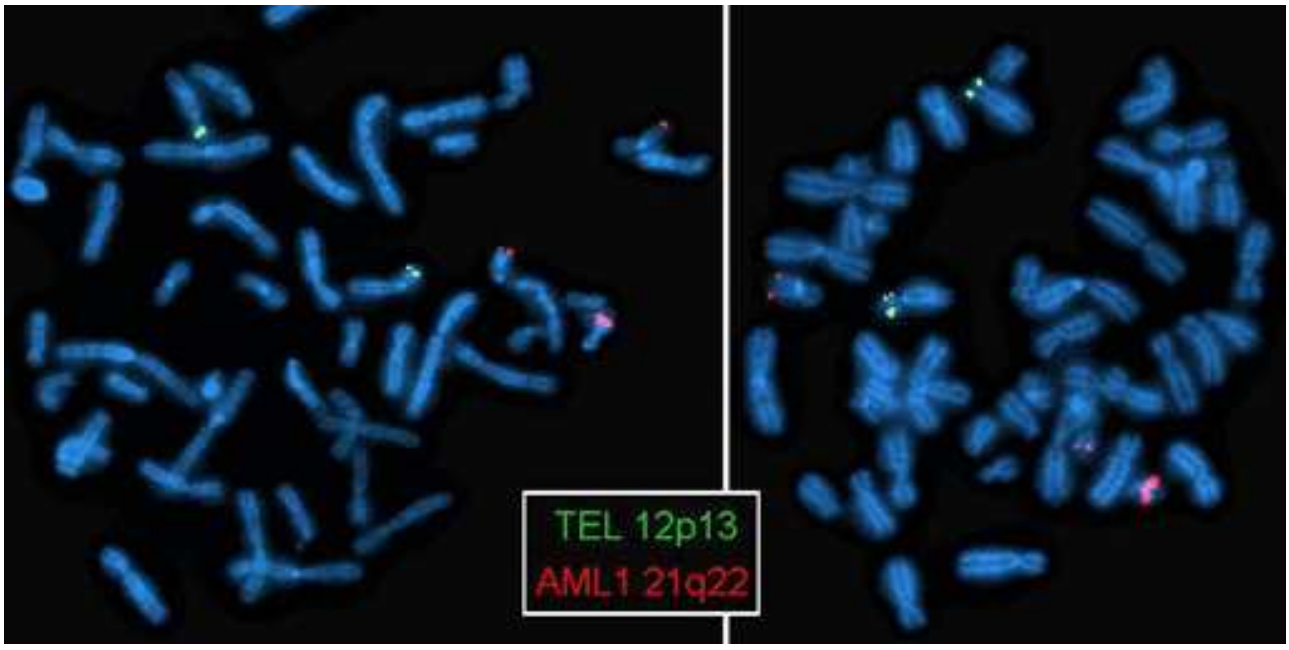
Comments

The t(16;21) was reported mostly in t-MDS/t-AML, and classified as M2 in a majority of cases. Two cases including this current report were observed after treatment for Hodgkin lymphoma.

Trisomy 8 is a frequent secondary abnormality associated with t(16;21), however in this current case we also report the presence of an additional chromosome Y and trisomy 3.



Partial GTG-banding karyotype showing t(16;21)(q24;q22)(a) and numerical anomalies.
Partial FISH analysis showing the AML1 hybridization signals on the derivative chromosomes 16 and 21 and on the normal chromosome 21(b).



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