

CASE REPORTS in HAEMATOLOGY
(Paper co-edited with the European LeukemiaNet)

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

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Clinics

Age and sex : 32 yrs old male patient

Previous history : preleukaemia RAEB diagnosed in 09-2006+ Hodgkin's lymphoma diagnosed in 2003;

Organomegaly : no hepatomegaly; no splenomegaly; enlarged lymph nodes; no central nervous system involvement

Blood

WBC : $0.29 \times 10^9/l$; Hb : 10.7 g/dl; platelets : $19 \times 10^9/l$;

Bone marrow : Megakaryocytes: none noted; Blasts: 65%; Promyelocytes: 1%; Myeloid Activity: 20%, occasional dysplastic forms; Erythroid Activity: 12%, occasional dysplastic forms; Lymphocytes: 2%

Cyto pathology classification

Cytology and immunophenotype : M2 arising from previous myelodysplastic syndrome (RAEB-1) 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 Cytosan, 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

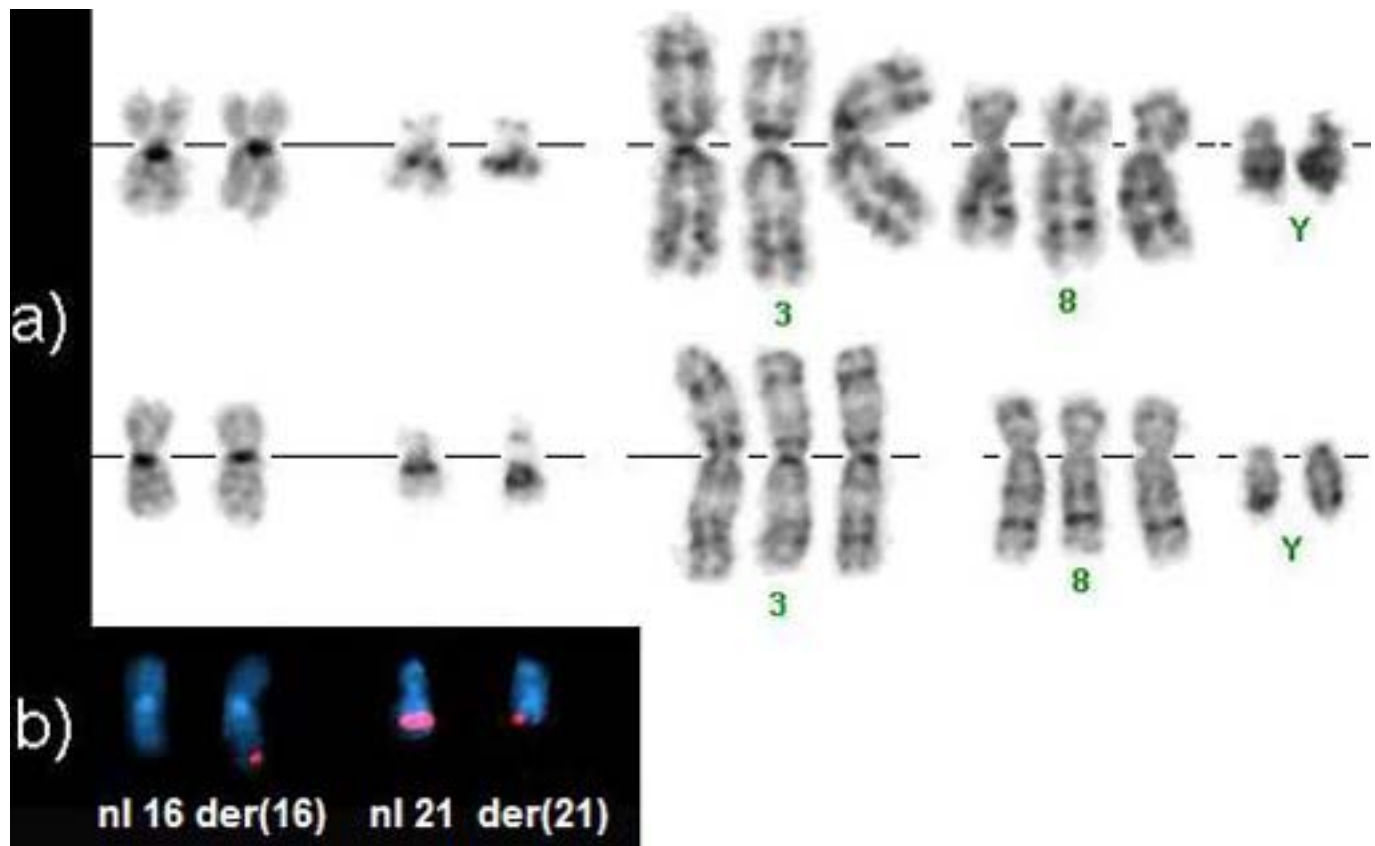
Karyotype

Sample : Bone marrow aspirate; culture time : 24; banding : GTG

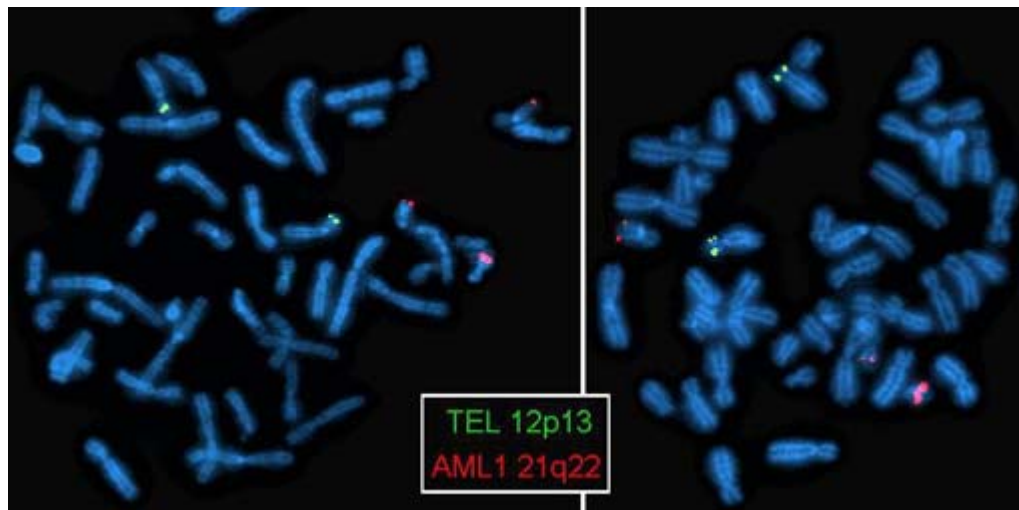
Results : 49,XY,+Y,+3,+8,t(16;21)(q24;q22)[18]/46,XY[2]

Other molecular cytogenetics 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 : lsh der(16)(dimAML1+), der(21)(dimAML1+)[5/5] (see Fig. 2).



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).



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.

Internal links

Atlas Card [t\(16;21\)\(q24;q22\)](#)

Case Report [A new case of t\(16;21\)\(q24;q22\) in a secondary AML-M2 following breast cancer](#)

[therapy](#)

Bibliography

t(16;21)(q24;q22).

Pérot C .

Atlas Genet Cytogenet Oncol Haematol 1998; 2 (3): 335-338.

<http://AtlasGeneticsOncology.org/Anomalies/t1621ID1123.html>

A pediatric case of secondary leukemia associated with t(16;21)(q24;q22) exhibiting the chimeric AML1-MTG16 gene.

Kondoh K, Nakata Y, Furuta T, Hosoda F, Gamou T, Kurosawa Y, Kinoshita A, Ohki M, Tomita Y, Mori T.

Leuk Lymphoma. 2002; 43: 415-420.

Medline [11999578](#)

t(16;21)(q24;q22).

Huret JL.

Atlas Genet Cytogenet Oncol Haematol 2003; 7 (4): 576-578.

<http://AtlasGeneticsOncology.org/Anomalies/t1621ID1123.html>

Abnormalities of the long arm of chromosome 21 in 107 patients with hematopoietic disorders: a collaborative retrospective study of the Groupe Francais de Cytogenetique Hematologique.

Jeandidier E, Dastugue N, Mugneret F, Lafage-Pochitaloff M, Mozziconacci MJ, Herens C, Michaux L, Verellen-Dumoulin C, Talmant P, Cornillet-Lefebvre P, Luquet I, Charrin C, Barin C, Collonge-Rame MA, Perot C, Van den Akker J, Gregoire MJ, Jonveaux P, Baranger L, Eclache-Saudreau V, Pages MP, Cabrol C, Terre C, Berger R; Groupe Francais de Cytogenetique Hematologique (GFCH).

Cancer Genet Cytogenet. 2006; 166: 1-11.

Medline [16616106](#)

Contributor(s)

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