The t(2;12)(p12;p13), leading to the juxtaposition of the cyclin D2 CCND2 gene with the immunoglobulin kappa locus (IGK), defines a small subset of mantle cell lymphomas lacking cyclin D1 expression.

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Clinics

Age and sex
89 years old female patient.

Previous history
no preleukemia
no previous malignancy
no inborn condition of note

Organomegaly
No hepatomegaly, splenomegaly (moderate), enlarged lymph nodes, no central nervous system involvement

Blood

WBC : 144 (lymphoma cells : 93%) Morphology showed small to medium sized lymphoid cells with pale cytoplasm and slightly to markedly irregular nuclear contour, sometimes mimicking centrocytes. Nucleoli were inconspicuous or absent.X 10^9/l

HB : 12.8g/dl
Platelets : 196X 10^9/l
Blasts : NA

Bone marrow : Bone marrow involvement (stage IV Ann Arbor).

Note
Rapid progression of the disease because 6 months ago laboratory analyses were normal (notably blood count).

Cyto-Pathology Classification

Phenotype: NA

Immunophenotype
lymphoma cells CD19+ CD5+ CD20+ (strong), CD22+ (strong), CD23+, FMC7+, monotypic kappa light-chain expression (moderate); Matutes score = 2/5.

Rearranged Ig Tcr
Not performed.

Pathology
Mantle cell lymphoma

Electron microscopy
Not performed.
The t(2;12)(p12;p13), leading to the juxtaposition of the cyclin D2 CCND2 gene with the immunoglobulin kappa locus (IGK), defines a small subset of mantle cell lymphomas lacking cyclin D1 expression.

**Diagnosis**
Mature B-cell neoplasm, cyclin D1-negative mantle cell lymphoma.

**Survival**

**Date of diagnosis:** 10-2014

**Treatment**
10/2014: Patient first received chloraminophene and rituximab (2 courses). 12/2014: Patient was then treated with ibrutinib (140 mg x 4/day).
Complete remission: no
Treatment related death: no
Relapse: no
**Status:** Dead

**Last follow up:** 01-2015
**Survival:** 4 months

**Karyotype**

**Sample:** Bone marrow

**Culture time:** 96h DSP30/IL2

**Banding:** GTG

**Results**
45,XX,t(2;12)(p12;p13),add(9)(p13),add(11)(q23),-22[7]/46,XX[7]

**Other molecular cytogenetics technics**

**FISH**

**Other molecular cytogenetics results**
45,XX,t(2;12)(p12;p13),ish
der(2)t(2;12)(WCP12p+),
der(12)t(2;12)(WCP12p+)[2].

**Other Molecular Studies**

**Technics:**
CCND1 (BCL1) expression evaluated by RT-PCR.

**Results:**
No CCND1 overexpression.

FISH analysis of the t(2;12)(p12;p13) translocation, using BAC probe CCND2 RP11-264F23 in red and BAC probe RP11-530J6 located at 2q33 in green. Arrows indicate the der(2) and der(12) chromosomes.
The t(2;12)(p12;p13), leading to the juxtaposition of the cyclin D2 CCND2 gene with the immunoglobulin kappa locus (IGK), defines a small subset of mantle cell lymphomas lacking cyclin D1 expression.

Comments

According to the WHO classification of hematopoietic tumours, mantle cell lymphoma (MCL) is defined as a B-cell neoplasm composed of monomorphic small to medium-sized lymphoid cells with a CCND1 (cyclin D1) translocation. In recent years, it has been observed a small subset of lymphomas resembling conventional MCL both morphologically and phenotypically, with a similar gene expression profile but lacking the CCND1 translocation (Fu et al, Blood, 2005).

In 2013, Salaverria et al. investigated 40 well-defined CCND1-negative MCL and identified 22 cases (55%) with CCND2 (cyclin D2) translocations (Salaverria et al, Blood, 2013). Interestingly, it was noted that CCND2 predominantly translocates to IG light chain genes (15/22, 68%) in contrast with CCND1 translocations.

Finally, in CCND1-negative MCL, the identification of CCND2 gene rearrangement provides a very robust marker for diagnosis.

References


This article should be referenced as such: