IMAGENS EM HEMATOLOGIA/IMAGES IN HEMATOLOGY

A case of possible genetic predisposition to myelodysplastic syndrome

Um caso de possível predisposição genética à síndrome mielodisplástica

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Myelodysplastic syndrome (MDS) is uncommon in young people[1] and approximately one-third of these cases seem to result from a genetic predisposition, usually involving the chromosomes 7 and 8.[2] As only some members of the family with the chromosomal abnormality may present MDS, it is not easy to explain the disease by any of the simple modes of inheritance.

Genomic paternal imprinting phenomenon may play an important role in the MDS origin in these cases.[3]

Rearrangements of 11q23 and 21q22, usually involving *MLL* and *AML1* genes, have been described in de novo and secondary MDS,[4] but coexisting abnormalities of 11q23 and 21q22 are rare in MDS. [4]

Herein, we showed with an educational purpose, the image obtained from the karyotype of one MDS patient with t(11;21)(q13;q22) seen in our service, whose father, who did not suffer from any haematological disease, presented the same chromosomal abnormality.

The patient, a 20-year-old woman, was referred to hospital in May 1999 due to anaemia. No history of cytotoxic or genotoxic exposure could be obtained. Muco-cutaneous pallor was the only abnormality present at physical examination. Blood count showed: RBC: 3.2 x10^6/ul, HGB: 10.2g/dl, HCT: 29.9%, MCV: 93.0fl, MCH: 33.3pg, MCHC: 35.8g/dl, RDW: 14.3%, Retic: 3.2x106/ul, WBC: 7.3x10^3/ul, neutrophil: 2.9x10^3/ul, lymphocyte: 3.7x10^3/ul, PLT: 344.0x10^3/ul. Serum ferritin, folic acid, cobalamin, bilirrubin, haptoglobin, urea, creatinine, thyroid hormones, were normal. Immunological diseases were excluded by specific evaluations. Sorological tests for the virus of hepatitis B, C and HIV were negative. Bone marrow aspirate and biopsy showed pronounced hypercellularity with atypias in erythroblasts and granulocytes. Nor ringed sideroblasts neither increase in myeloblast count were seen. The karyoptype shows the t(11;21)(q13;q22) (Figure 1). The diagnosis of MDS of refractory anaemia type was established.

The same chromosomal abonormality was found in her father, a 58 years old health man (Figure 2). Her mother's karyoype was normal. Genomic paternal imprinting on chromosome 11 may have played an important role in the

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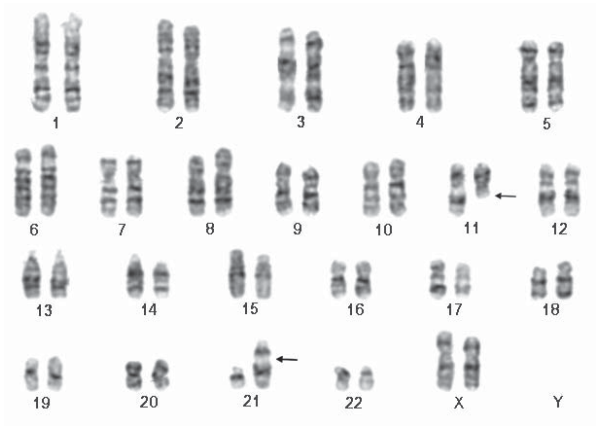

Fig. 1 – *G-banded karyotype obtained from the myelodysplastic syndrome patient at diagnosis: 46, XX, t(11;21)(q13;q22). The arrows show the chromosomal abnormalities*

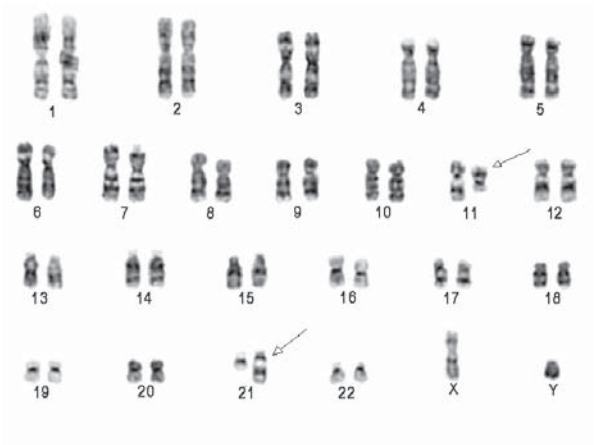

Fig. 2 – *G-banded karyotype obtained from the father´s myelodysplastic syndrome patient: 46, XY, t(11;21)(q13;q22). The arrows show the chromosomal abnormalities*

origin of the patient's disease, as this kind of phenomenon has not yet been described on chromosome 21.

Evaluations of methylation status of the chromosome 11 and molecular analyses of the MLL and AML genes would be performed in the patient and her father, but she abandoned the medical service after six months of follow up and no additional peripheral or bone marrow samples of either individual were available at this time.

Therefore, we can only suggest that the patient´s disease was determined for the inherited translocation, but no consistent conclusions about this matter could be obtained by our group.

References

1. Kerhofs H, Hermans J, Haak HL et al. Utility of the FAB classification for myelodysplastic syndromes: investigation of prognostic factors in 237 cases. Br J Haematol 1987;65:73-81.
2. Minelli A, Maserati E, Giudici G et al: Familial partial monosomy 7 and myelodysplasia: different parenteral origin of the monosomy 7 suggests action of a mutator gene. Cancer Genet Cytogenet 2001;124:147-151.
3. Katz F, Webb D, Gibbons B et al: Possible evidence for genomic imprinting in childhood acute myeloblastic leukemia associated with monosomy for chromosome 7. Br J Haematol 1992; 80: 332-336.
4. Mathew S, Head D, Rubnitz JE et al: Concurrent translocations of MLL and AML1 genes with new partner breakpoints in a child with secondary myelodysplastic syndrome after treatment of acute lymphoblstic leukemia. Genes Chromosomes Cancer 2000;28:227-232.

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