Haematologica 1997; 82:635-636

THE SYNDROME OF ABNORMAL CHROMATIN CLUMPING IN LEUKOCYTES

GIOVANNI CARULLI, ORTENSIO FABIANI,* ANTONIO AZZARÀ
*Unità di Ematologia, Dipartimento di Oncologia; *Dipartimento di Produzioni Animali, Università di Pisa, Italy*

A 65-year-old female was admitted to our Institute for anemia-related symptoms. The hematological findings were as follows: Hb 65 g/L, platelet count 45×10^9/L; WBC 18×10^9/L with neutrophils 74%, lymphocytes 8%; monocytes 2%, promyelocytes 2%, myelocytes 12%, metamyelocytes 2%. When observed under the microscope, neutrophils were characterized by loss of segmentation (pelgeroid features) and abnormal chromatin condensation. Myeloperoxidase and PAS stainings were normally positive, and a high score of LAP was registered. Bone marrow smears were hypercellular, with excess blasts (13%) and an increase in myelocytes. The abnormal chromatin condensation was observed in mature myeloid forms (Figure 1). In addition, dyserythropoiesis and dysmegakaryopoiesis were observed. A bone marrow biopsy was not available. Karyotype analysis (kindly provided by Dr. Paolo Simi, Chief, U.O. Citogenetica, Azienda Ospedaliera Pisana) excluded the presence of Ph1 chromosome, and the BCR-ABL fusion gene was absent as well.

Electron microscopy studies on peripheral blood cells were carried out, and the ultrastructural study confirmed evidence of the abnormality of chromatin organization in neutrophils: large blocks of chromatin were detected (Figure 2), and this finding explained the morphological features observed with light microscopy. In addition, circulating myelocytes displayed evidence of initial anbormal chro-

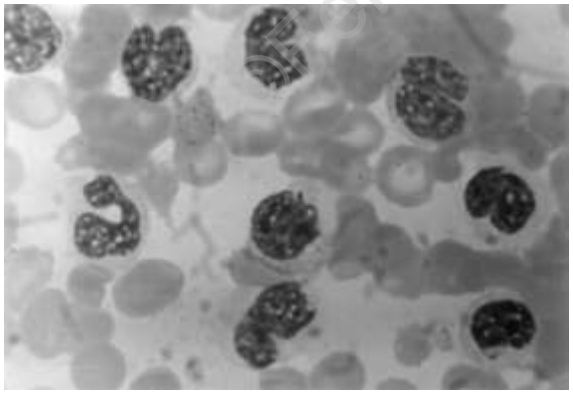

Figure 1. Bone marrow (MGG, ×1000). Neutrophils with morphological features indicating abnormal chromatin condensation.

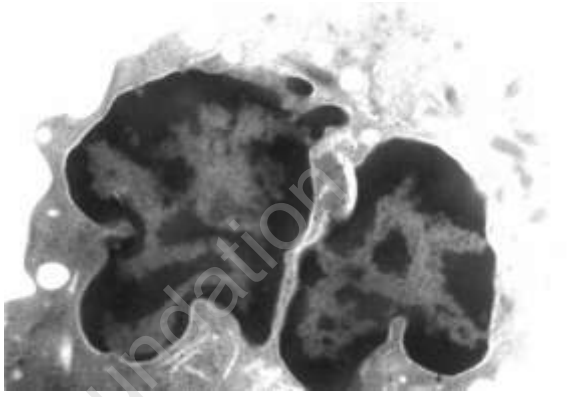

Figure 2. Ultrastructure of a circulating granulocyte: large blocks of chromatin are present (×12000).

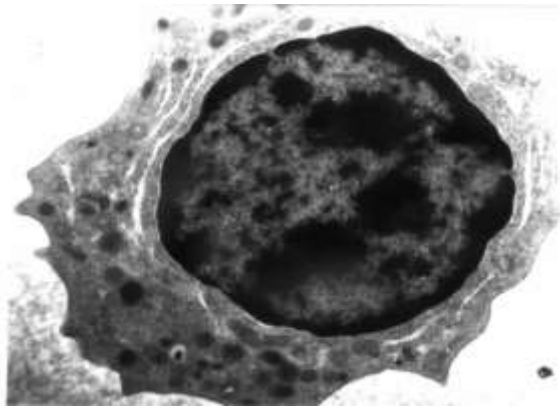

Figure 3. A circulating myelocyte, with blocks of heterochromatin (electron microscopy, ×14000).

Correspondence: Giovanni Carulli, M.D. Unit of Hematology, Ospedale S. Chiara, via Roma 67, 56100 Pisa, Italy. Tel. international +39.50.592110. Fax international +39.50.502617.
Acknowledgements: the Authors wish to thank Mr. Bruno Puccini, Mrs. Anna Maria Bovicelli and Mrs. Maria Rita Cini for their technical assistance.

matin clumping (Figure 3).

The patient was treated with oral idarubicin (10 mg/m^2 for three consecutive days, every month), but to date, after two courses, no improvement has been detected.

While several neutrophil abnormalities may be found in myelodysplastic syndromes,[1,2] the syndrome of abnormal chromatin clumping in leukocytes seems to be a rare finding.[3-5] The cases so far described appeared to be characterized by anemia and thrombocytopenia, leukocytosis with circulating immature myeloid cells (chiefly myelocytes), absence of monocytosis, granulocytic hyperplasia of the bone marrow with dysplastic changes, absence of specific karyotype abnormalities, and poor prognosis with a fairly high incidence of fatal bleeding and infections. On the basis of such findings, Felman *et al*.[3] proposed that this particular syndrome, which shows both myelodysplastic and myeloproliferative features, might be classified among the vast group of myelodyslastic syndromes. Some patients were found to be affected by chronic myeloid leukemia.[6]

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