

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology-Cell Morphology – Case 21

- Presents in the bone marrow and peripheral blood cells with an image of monocytic and granulocytic series differentiation
- Blasts $\geq 30\%$ of non-erythroid cells of bone marrow
- More than 20% of non-erythroid cells in the bone marrow are promonocytes and monocytes or in the peripheral blood ($>5 \times 10^9/L$)
- Cytochemistry is always necessary.

Because the cells of the monocytic series are more mature in the peripheral blood, the type of leukemia is better diagnosed than in the marrow smear (number of monocytes more than $5 \times 10^9/L$ in the peripheral blood). In the bone marrow the presence of promonocytes and blast cells of both granulocytic and monocytic series in varying proportions is characteristic. Morphologically, the blasts are of different size and shape, with round or folded nucleus and fine chromatin appearance, well visible nucleoli, abundant cytoplasm with aggregation of azurophilic granules, pseudopodia formation and the rare presence of Auer bodies (figures 1 to 9).

Type with eosinophilia, M4eos: Blasts with a typical monocytoid appearance of nucleus and abundant cytoplasm containing many azurophilic granules or myeloblasts with Auer bodies. In the bone marrow there are abundant mature or immature eosinophils containing, characteristically, both eosinophilic and basophilic granulation (hybridic eosinophils). Often in the bone marrow the immature eosinophilic precursors predominate in different stages of maturation with a cytoplasm containing numerous dark abnormal granules, while more rarely the monoblasts,

promonocytes and abnormal eosinophilic myelocytes are the dominant cells. In some cells granulation is dark and abundant, making accurate cell morphology distinction difficult. Sometimes the peripheral blood appearance is the same as in the typical M4 with the presence of eosinophils of normal morphology, while the neutrophils are often hypolobulated (Pelger-Huet) (figures 10 to 12).

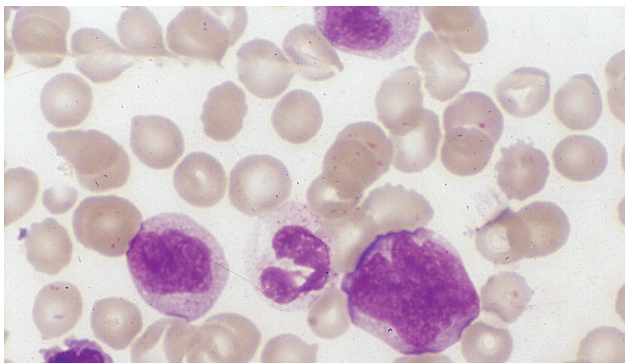


Figure 1

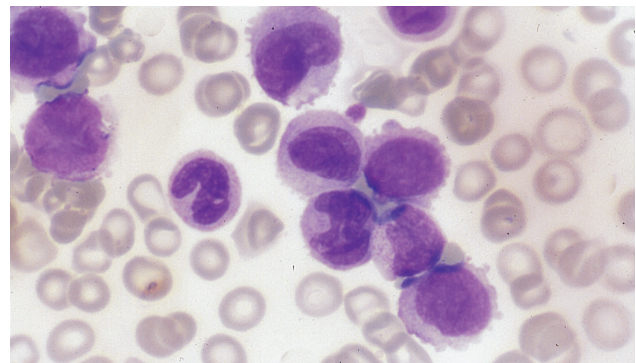


Figure 2

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2023, 40(3):427–429

J.V. Asimakopoulos,
L. Papageorgiou,
J. Drandakis,
I. Vasilopoulos,
D. Galopoulos,
A. Kopsaftopoulou,
A. Piperidou,
A. Machairas,
A. Georgopoulou,
A. Karapaschalidis,
M.A. Lefaki,
A. Liaskas,
C. Zerzi,
E. Sinni,
E. Plata,
P. Tsafaridis,
M.P. Siakantaris,
T.P. Vassilakopoulos,
M.K. Angelopoulou,
J. Meletis

School of Medicine, National and
Kapodistrian University of Athens,
"Laiko" General Hospital, Athens, Greece

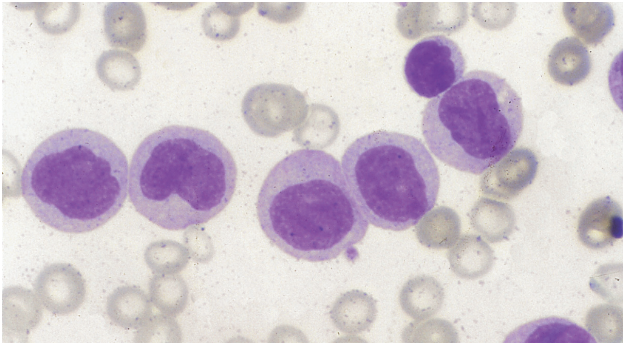


Figure 3

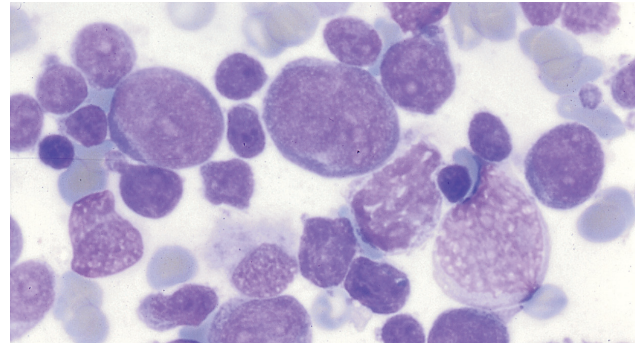


Figure 7

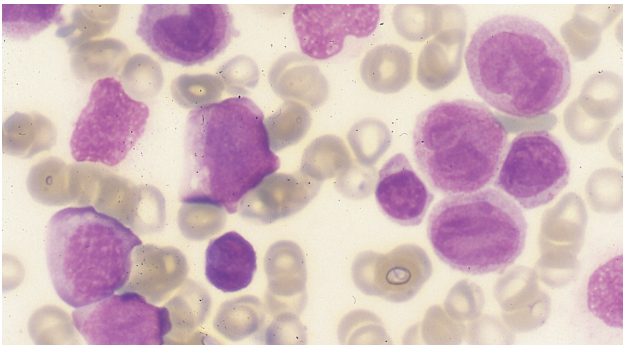


Figure 4

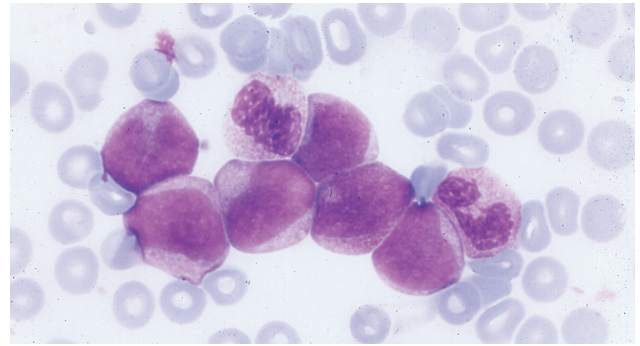


Figure 8

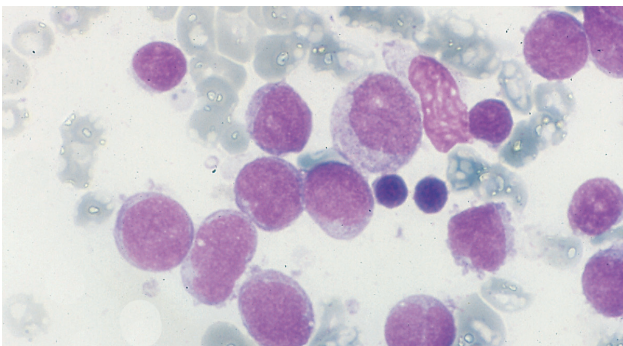


Figure 5

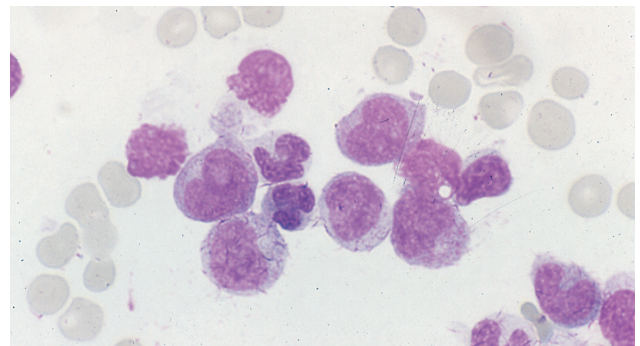


Figure 9

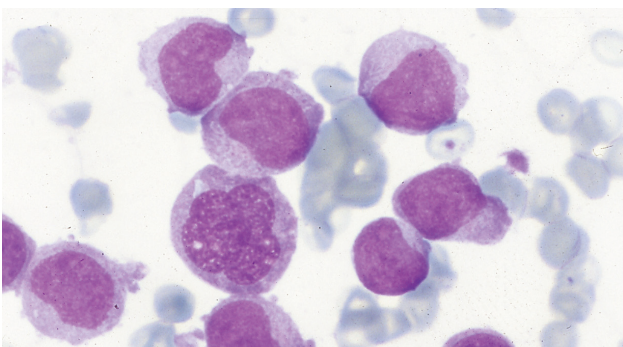


Figure 6

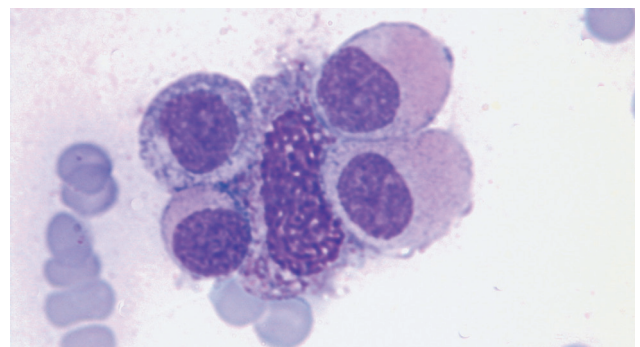


Figure 10

Naphthol AS-D acetate esterase, NASDA staining: Heavy positive, sensible in NaF inhibition (figures 14, 15) (distinction from granulocytic series cells). α -naphthyl butyrate esterase (ANBE)

staining: Positive. Peroxidase (16) (fig 13) and non-specific esterase staining, ANAE (fig. 16). Variation of positivity. PAS staining: Weak positivity.

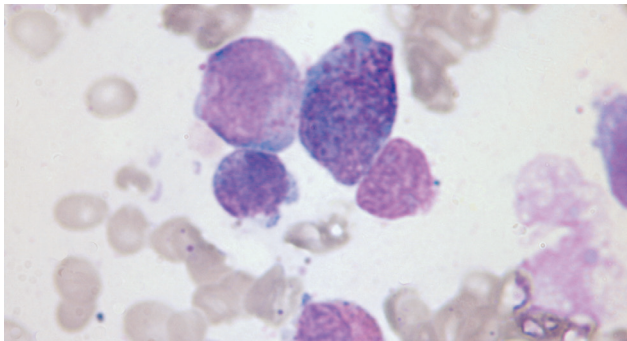


Figure 11

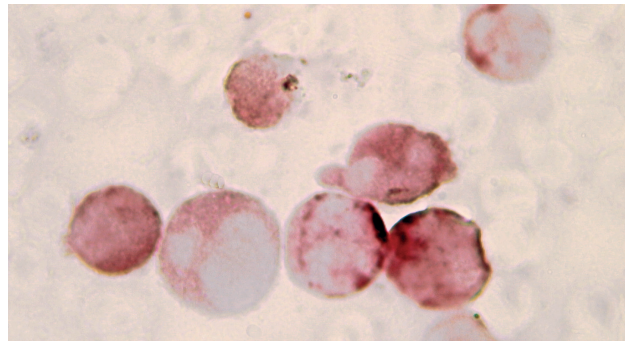


Figure 14

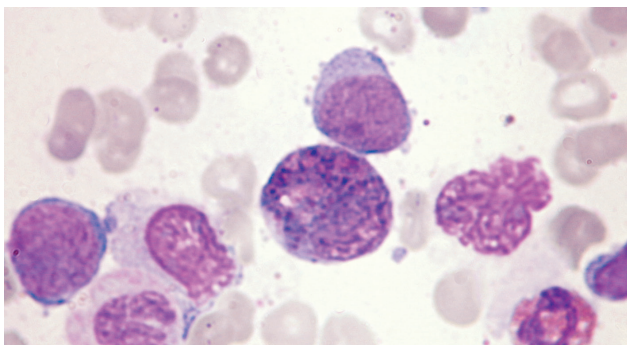


Figure 12

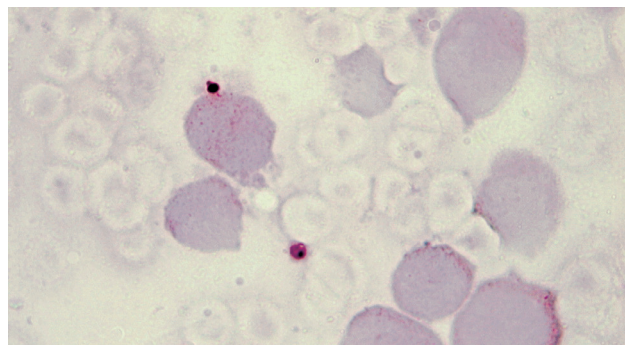


Figure 15

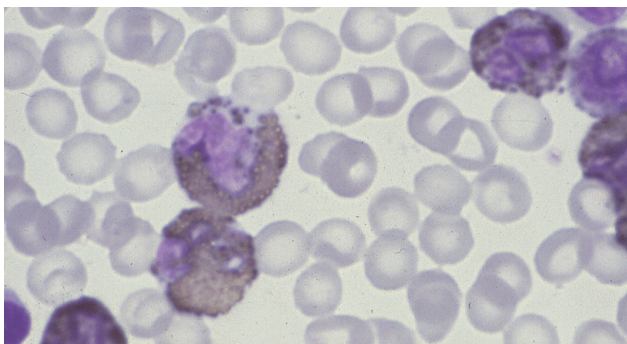


Figure 13

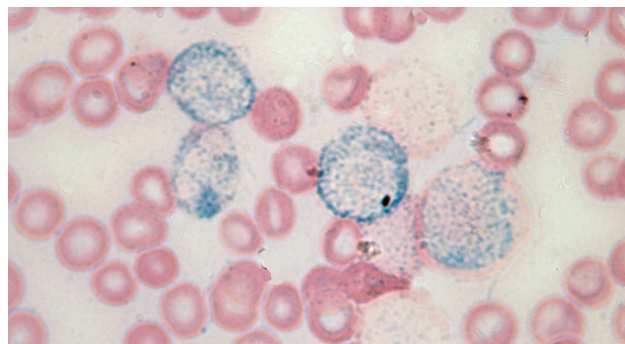


Figure 16

References

1. MELETIS J. *Atlas of hematology*. 3rd ed. Nireas Publ Inc, Athens, 2009:355–374

Corresponding author:

J. Meletis, School of Medicine, National and Kapodistrian University of Athens, "Laiko" General Hospital, Athens, Greece
e-mail: imeletis@med.uoa.gr

Acute myelomonocytic leukemia (M4)