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CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology-Cell Morphology – Case 17

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2022, 39(5):718–720

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- Erythroblasts 50% of nucleus bone marrow cells
- Blasts ≥30% of non-erythroid bone marrow cells
- Very abnormal erythroblastic morphology
- Multilobulated nuclei
- Multiple nuclei
- Abundant karyorrhexis
- Giant erythroblasts
- Increased myeloblasts and promyelocytes
- Abnormal megakaryocytes.

Myeloblasts (same as M1 or M2 blasts, rarely Auer bodies) and proerythroblasts of giant size, with multiple nuclei, and megaloblastoid features of chromatin network. In the bone marrow there is an erythroid series hyperplasia with a dyserythropoietic appearance. There are erythroblasts with abnormal nucleus network, binucleated and multinuclear erythroblasts with nuclear/cytoplasmic maturation, asynchrony with vacuolation of the cytoplasm (glycogen inclusion) and hemoglobinization disturbances (figures 1 to 8). For erythroleukemia the distinction from the other cases of dyserythropoiesis and megaloblastosis the erythroblastic content must be over 30% of non-erythroid bone marrow cells of the blasts (type I or II). When the erythroblastic element is >50% and the blast cells <30% of non-erythroid bone marrow cells the diagnosis of myelodysplastic syndrome is made (figures 9 to 14). In most cases of M6 there is a trilineage dysplasia. Typical erythroleukemia can often progress in AML M1, M2 or M4 type with proportional increase of blastic bone marrow cells. There is rarely a predominance early immature erythroblasts in the bone marrow with low blastic infiltration. This type of erythroblastic leukemia (M6 variant) must be differentiated from severe megaloblastic anemia. In many cases, of an otherwise undifferentiated acute leukemia, the blastic cells belong to the erythroid series (similar to CFU-E, distinction with monoclonal antibodies or by electronic microscopy). A distinction

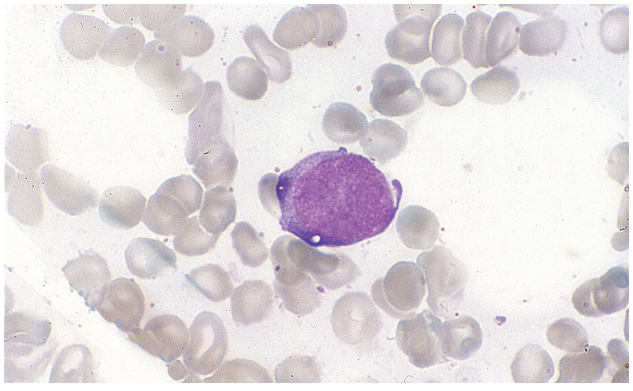


Figure 1

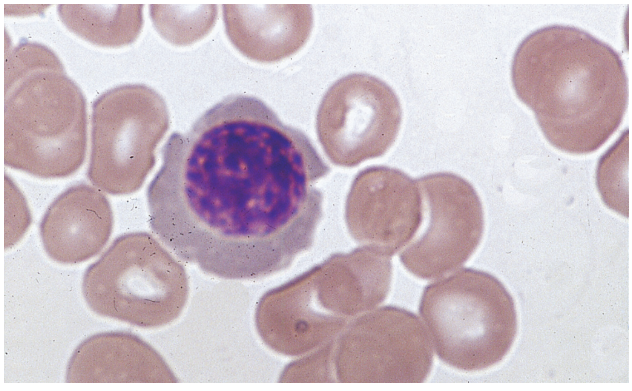


Figure 2

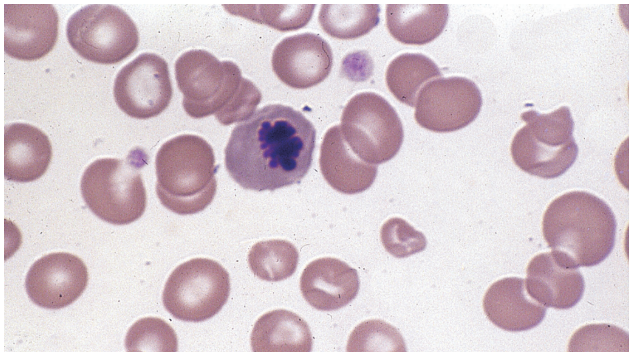
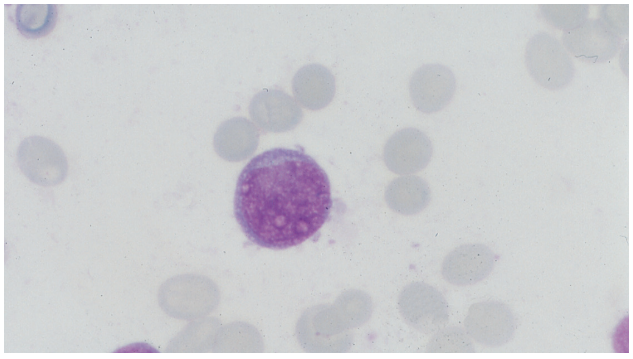


Figure 3



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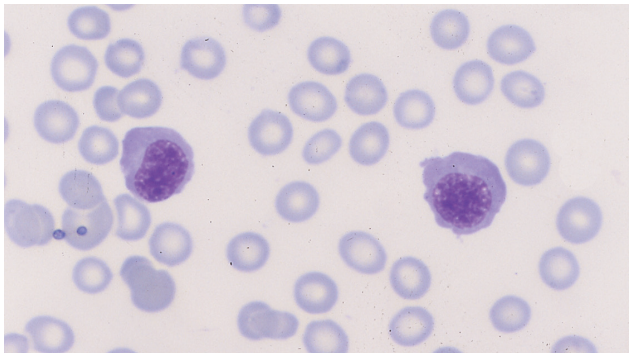

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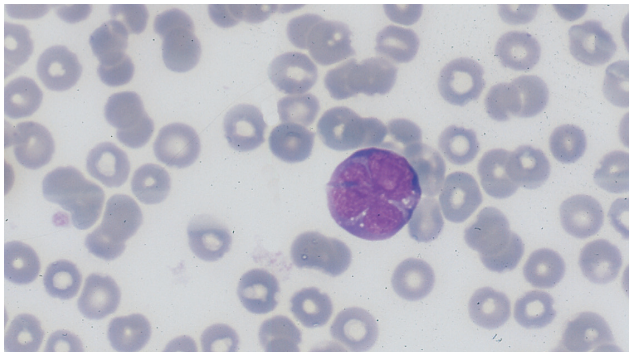

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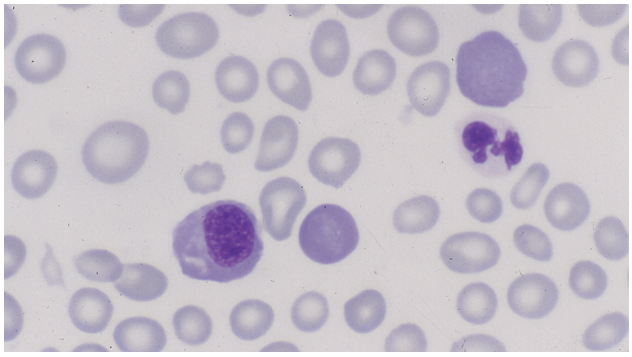

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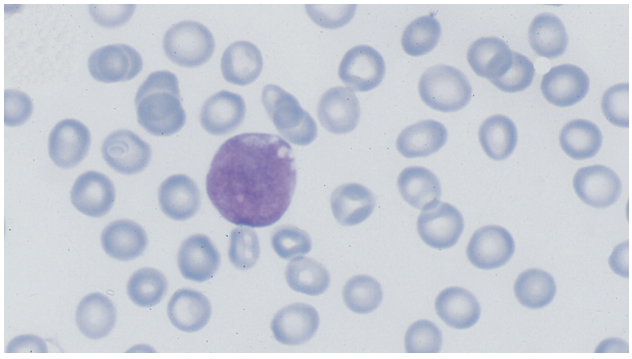

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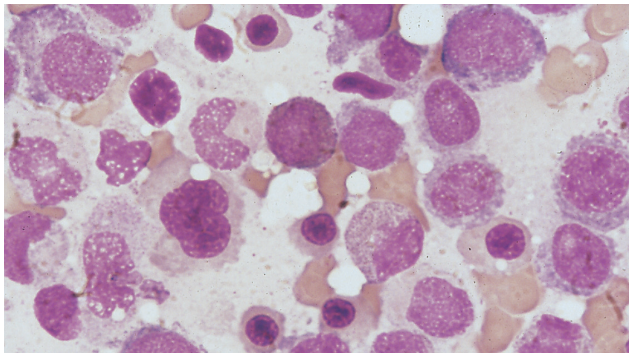


Figure 9

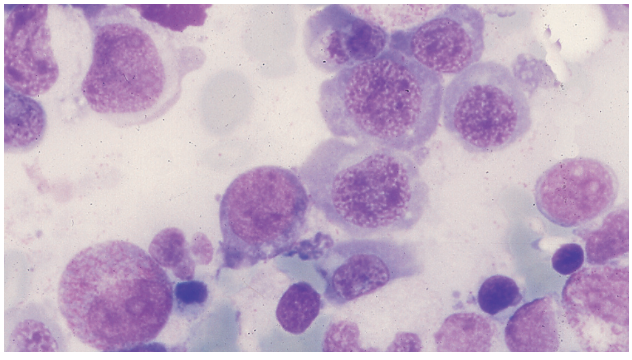


Figure 10

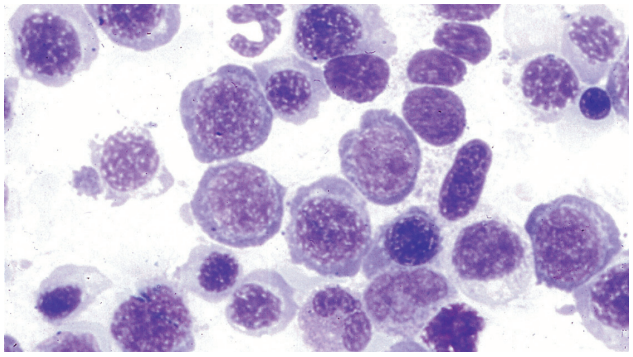


Figure 11

of M6a type can be made (for the early erythrocytic leukemia) and in M6b for the erythroleukemia.

Peroxidase, acid phosphatase and specific esterase (NACE) staining: Weakly positive or negative in myeloblasts (many cases with a local positivity are described). PAS staining: Heavy positivity of erythroblasts (weak or diffuse, and or granular positivity in a background of diffuse reaction or large heavy positive blocks) (figures 15, 16). The positivity of reaction is not always stable; thus its diagnostic value is low. Blastic cells present the corresponding staining positivity proportionally to the cell type or may be present as undifferentiated cells.

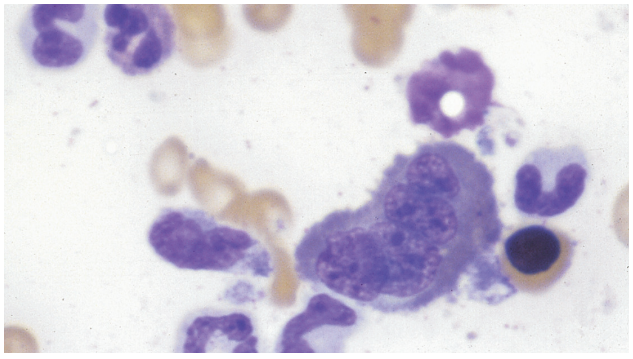
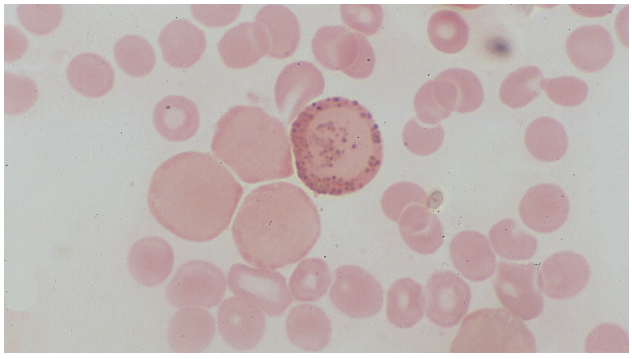


Figure 12



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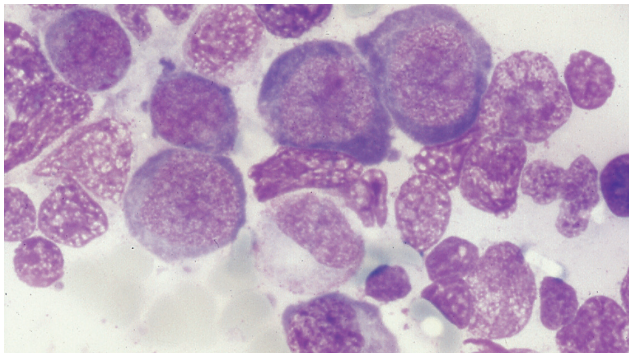

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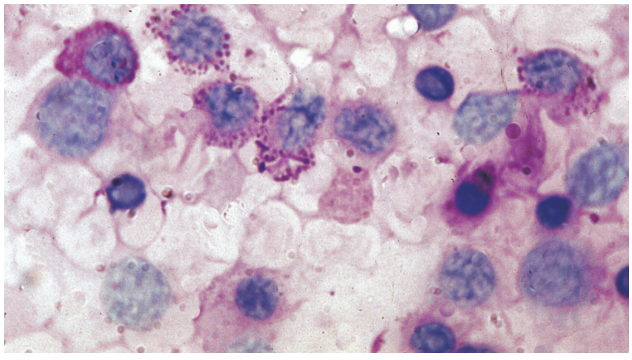

Figure 16

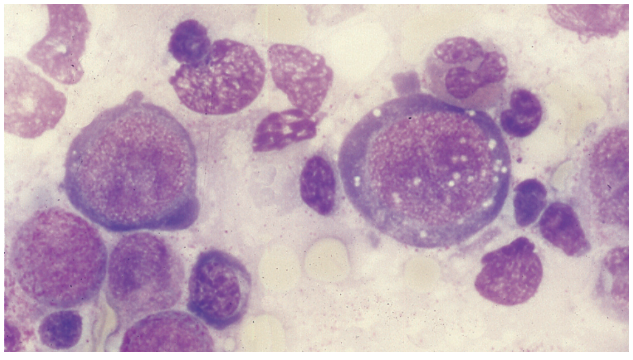

Figure 14

References

1. MELETIS J. *Atlas of hematology.* 3rd ed. Nireas Publ Inc, Athens, 2009:391–399

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