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CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology-Cell Morphology – Case 24

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2024, 41(3):429–431

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- Blasts without granulation
- One or more nucleoli
- Blasts ≥90% of non-erythroid cells in the bone marrow
- Peroxidase staining in ≥3% of blasts.

Blastic cells of type I (without granules) and type II (with few azurophilic granules) which may be differentiated from the normal promyelocytes. Morphologically, blasts in acute myeloblastic leukemia (AML) M1 are of the same size (the size fluctuates from small to large) and shape, with a round or oval nucleus, coarse chromatin pattern and well visible of one or more nucleoli, high nucleus/cytoplasmic ratio, basophilic cytoplasm without granulation in the main part and the rare presence of Auer bodies and small maturation (often the signs of granulocytic differentiation are absent). Some blasts rarely present cytoplasmic vacuolization.

Mitoses are prominent as well as the presence of few abnormal promyelocytes with heavy granulation and a prominent Golgi apparatus (perinuclear halos). Sometimes many blasts of large size are present with abundant cytoplasm and fine azurophilic granulation or vacuoles. Often the blasts are morphologically similar to lymphoblasts (figures 1 to 12).

Peroxidase staining (primary granules and lysosomes): Varying intensity (heavy positive or negative blasts). This staining may be positive even in blasts without azurophilic granules (endoplasmic reticulum, Golgi apparatus)(figures 13 to 14). In histochemical staining, the blast may rarely be negative resulting in a false diagnosis and the granulocytic examination is made by immunophenotyping. Sudan black B staining: Positive blasts. Specific esterase staining

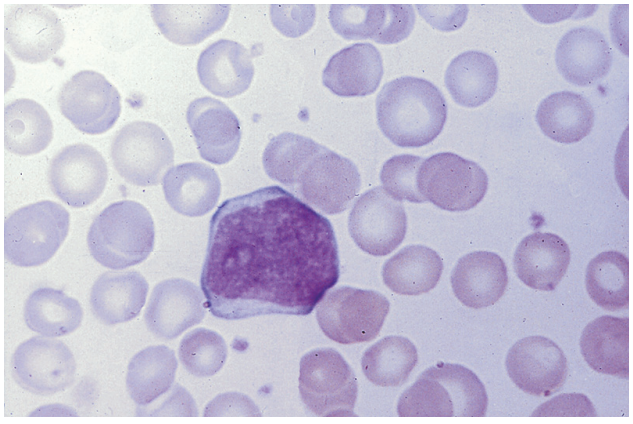


Figure 1

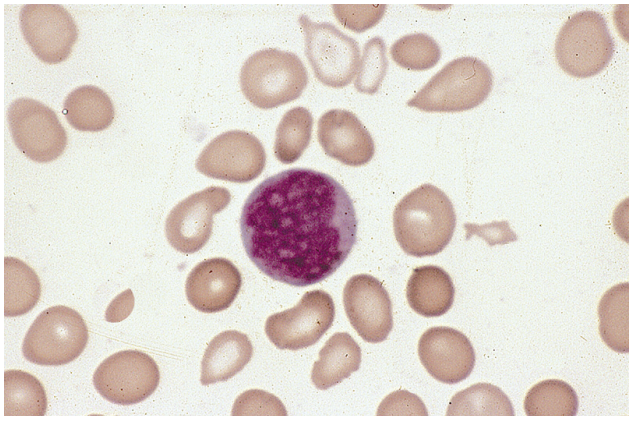


Figure 2

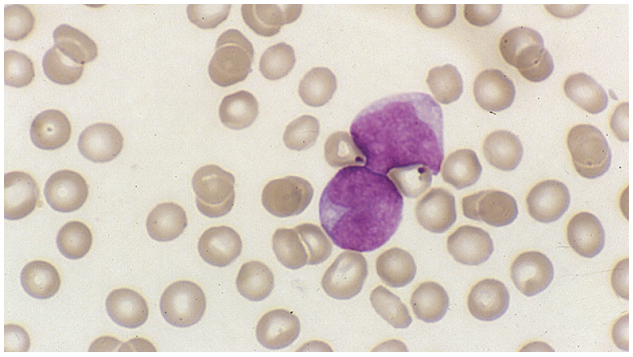
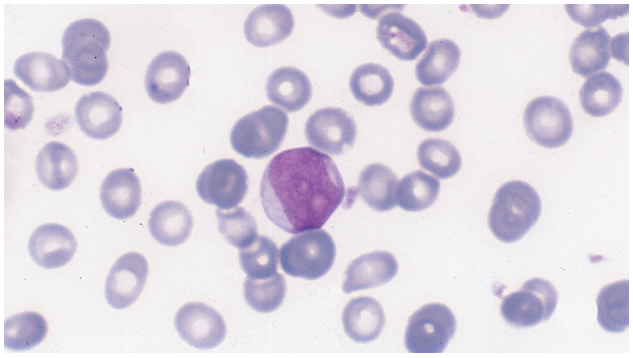


Figure 3



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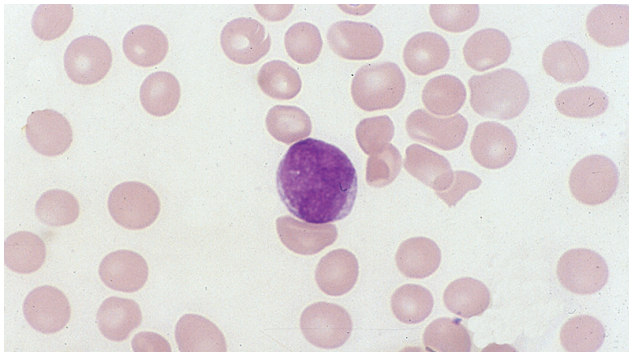

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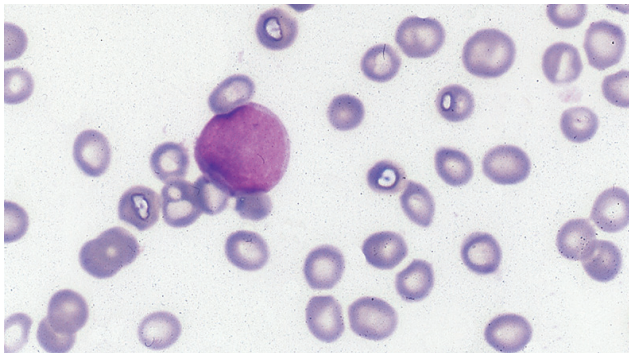

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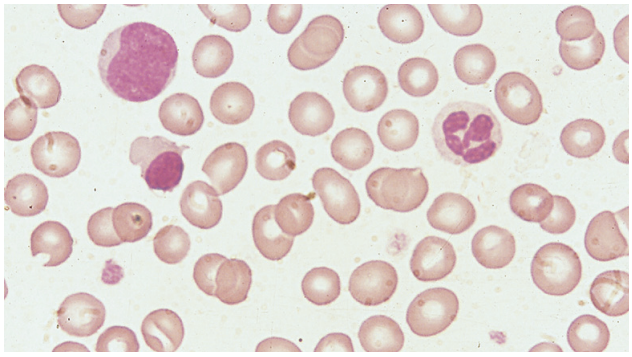

Figure 7

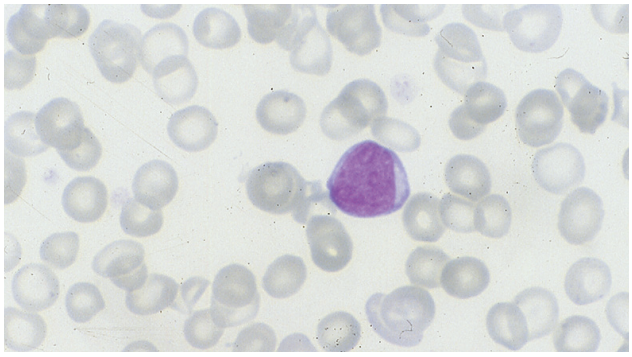

Figure 8

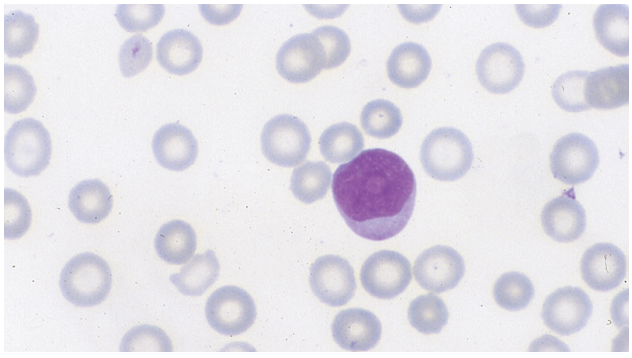

Figure 9

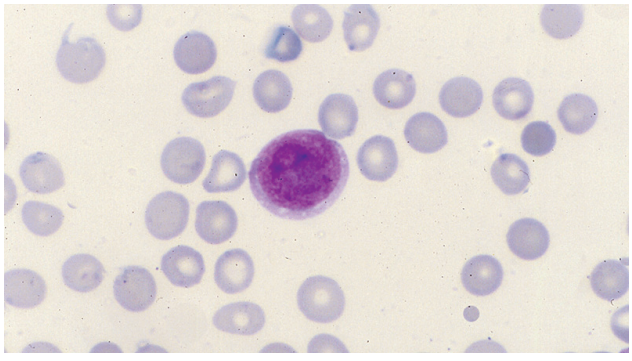

Figure 10

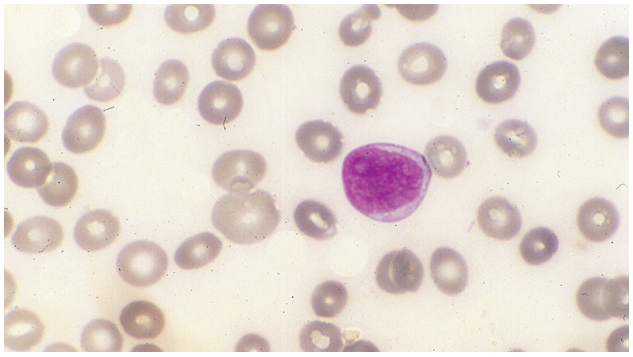

Figure 11

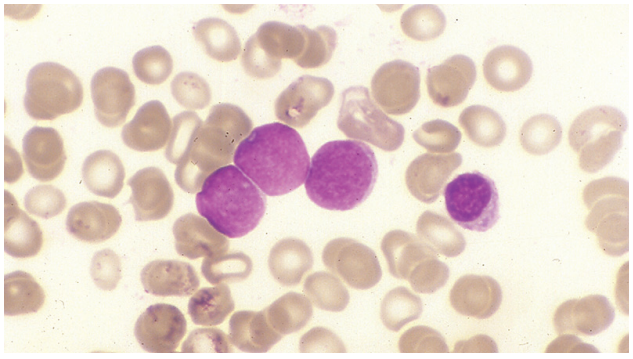

Figure 12

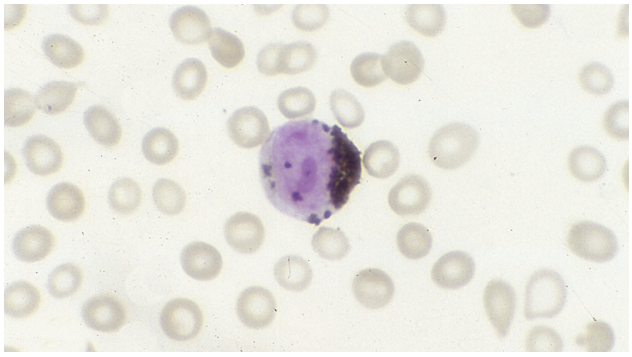

Figure 13

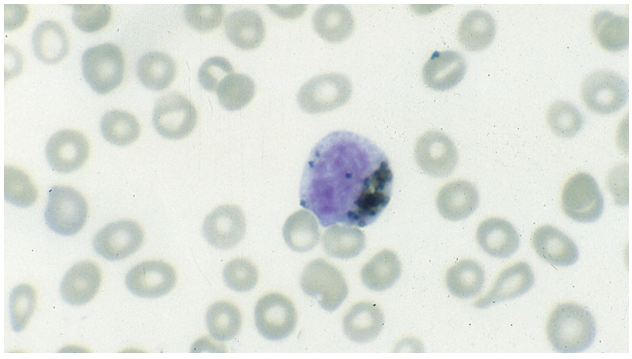

Figure 14

(napthol AS-D-chloroacetate esterase, NACE): Positive blasts. Acid phosphatase staining: Intense or light positivity. Periodic acid-Schiff (PAS) staining: Usually negative or a fine granular positivity.

References

1. MELETIS J. *Atlas of hematology.* 3rd ed. Nireas Publ Inc, Athens, 2009:325–328

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Cell type: *Acute myeloblastic leukemia without maturation (M1)*