

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology-Cell Morphology – Case 18

Megakaryoblasts (>30% in the bone marrow) are large and abnormal megakaryocytes of different size and shape, some cells with only one nucleus, with very deep colored nuclei and a small amount of cytoplasm often granular or vacuolated, with small pseudopodia containing granulation or a large atypical nucleus and abundant granular cytoplasm (often a difficult distinction from myeloblasts). There is a blastic cell multiformity and the size can vary from small (resembling a lymphoblast) to large undifferentiated cells. The cytoplasm is usually deep, basophilic, and may rarely contain few granules. The nucleus chromatin network may be fine or very deep (micromegakaryoblasts), and some bilobulated blasts can be seen. Existence of abnormal platelets (figures 1 to 15). The diagnosis of acute myeloid leukemia (AML) M7 can be suspected when the blastic cells have cytoplasmic projections. The exact nature of the blasts is often difficult or impossible to

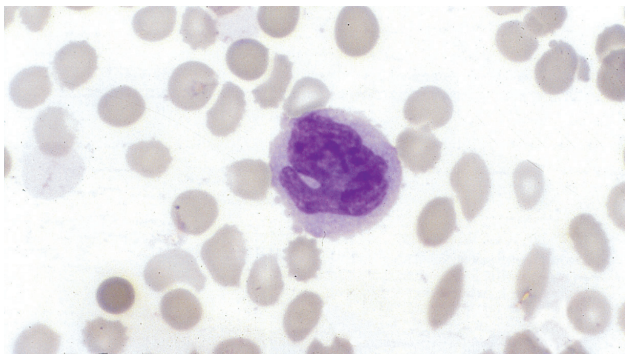


Figure 1

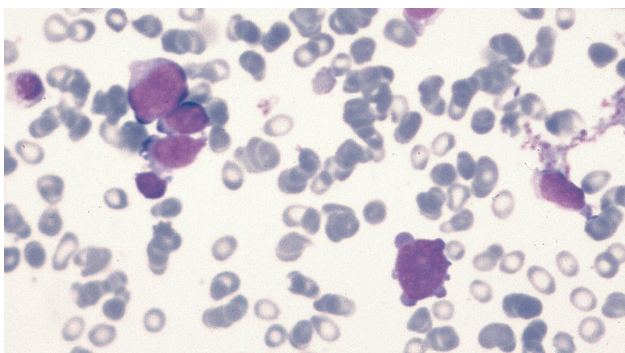


Figure 2

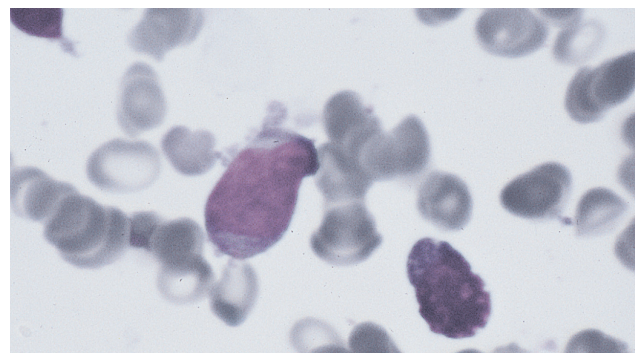


Figure 3

ARCHIVES OF HELLENIC MEDICINE 2022, 39(6):859–861
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2022, 39(6):859–861

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discern by light microscopy. There are also accessory problems for the determination of abnormal megakaryocytes, especially in the presence of a hypolobulation, decreased ploidy and insufficient granulation. These difficulties are increased because the bone marrow specimens are usually inadequate because of concomitant fibrosis (the presence in the peripheral blood of micromegakaryoblasts is diagnostic). Sometimes there is an

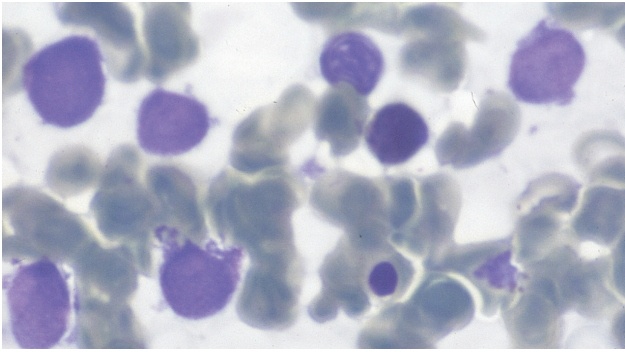


Figure 4

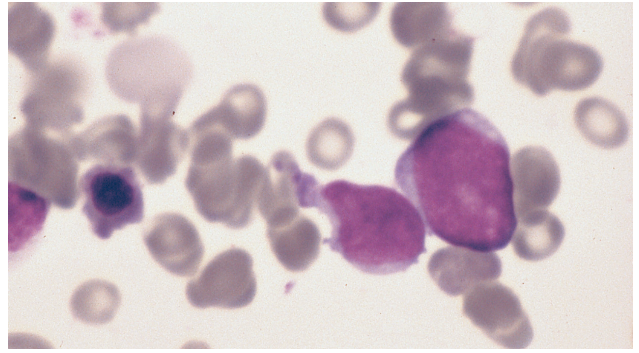


Figure 8

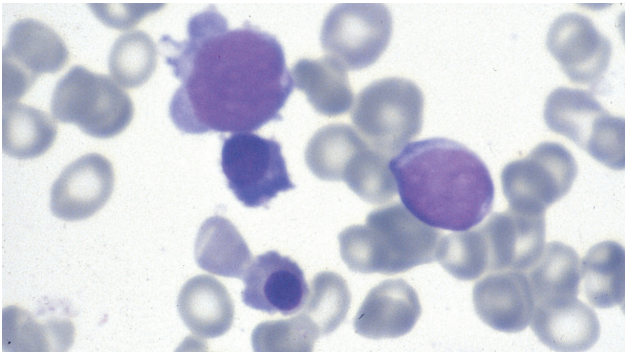


Figure 5

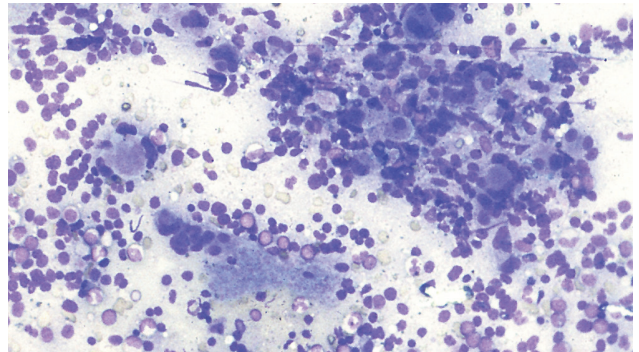


Figure 9

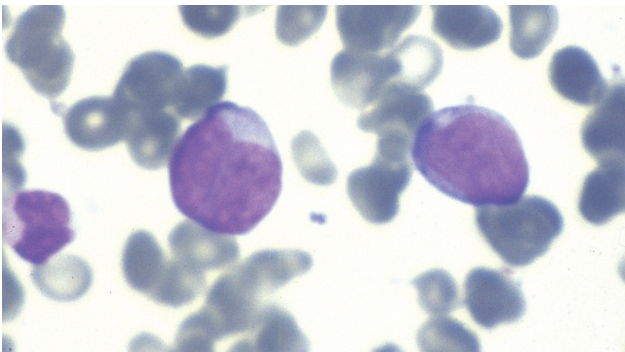


Figure 6

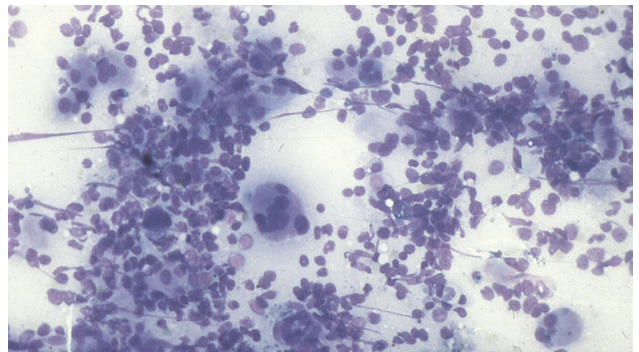


Figure 10

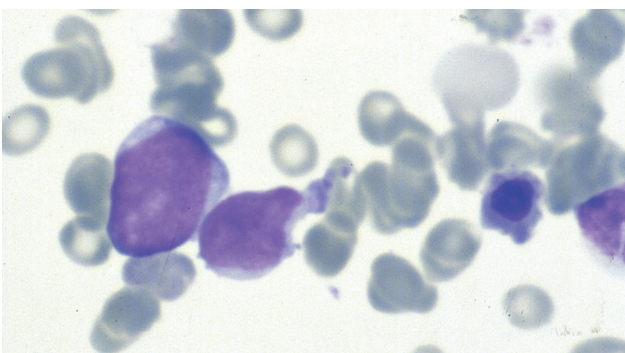


Figure 7

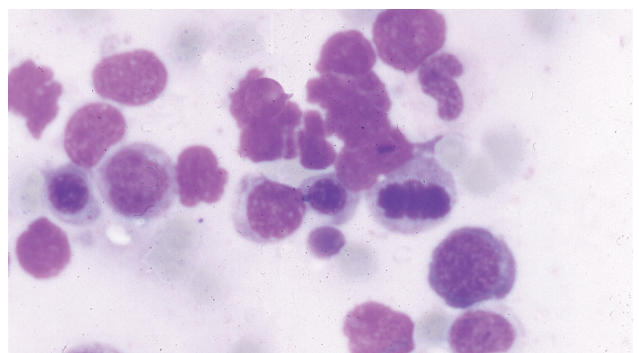


Figure 11

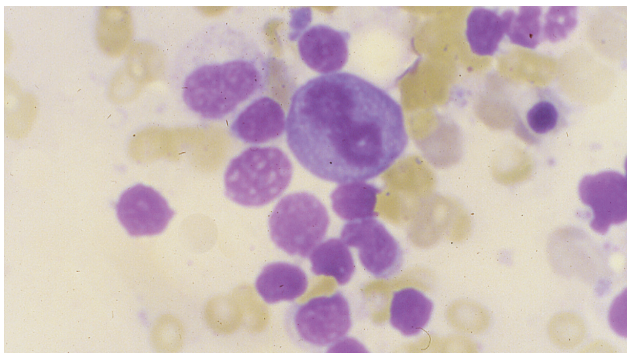


Figure 12

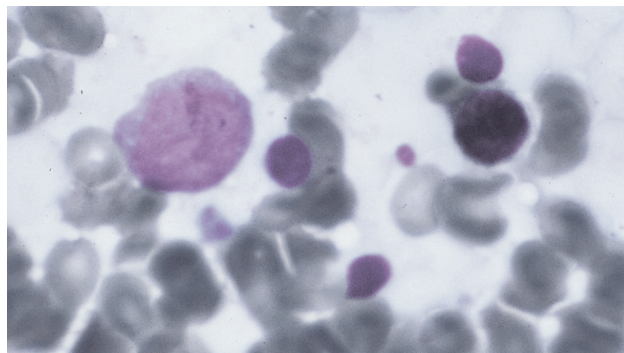


Figure 15

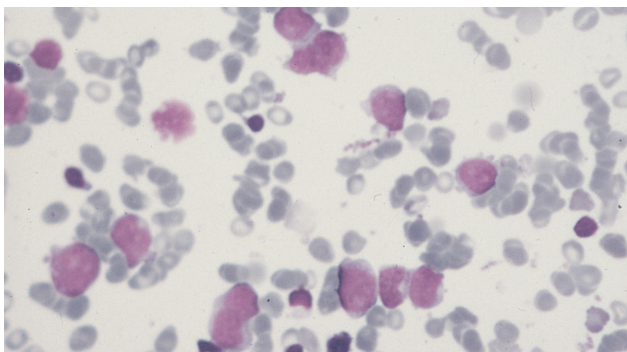


Figure 13

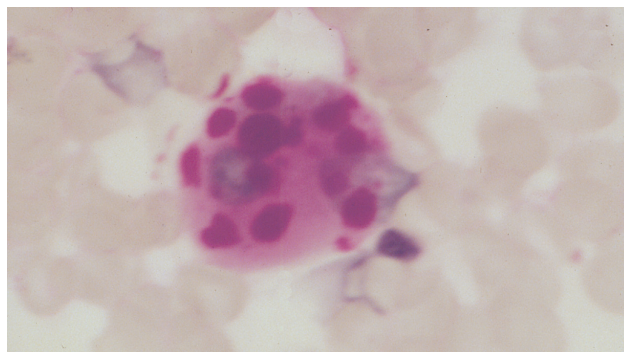


Figure 16

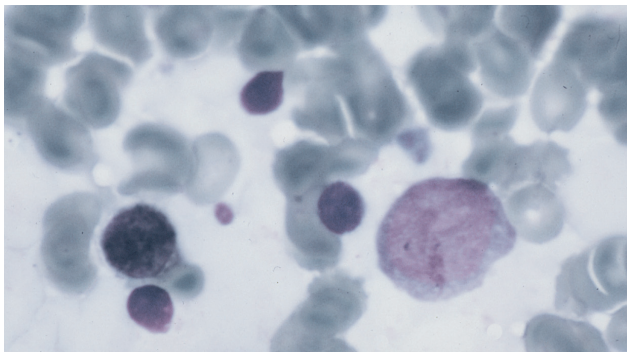


Figure 14

erythroblastic and or myeloblastic increase, as well as an obvious trilineage dysplasia in the bone marrow; quite frequently there is a large sized increase of maturing megakaryocytes. In the peripheral blood, thrombocythemia and or thrombocytopenia, abnormal gray platelets (absence of normal α -granules), giant platelets and micromegakaryoblasts may be present.

Peroxidase and specific esterase staining: Negative. Periodic acid-Schiff (PAS) staining: Varied positivity, usually weakly diffuse cytoplasmic positivity with areas of local heavier positivity. Positive reaction in mature megakaryocytes, as well as micromegakaryoblasts of many cases of AML M7 (fig. 16). Acid phosphatase staining: Local or diffuse positivity, mainly in the Golgi apparatus zone. Non-specific esterase (ANAE) staining: Local or diffuse positivity, resistance in NaF inhibition.

References

1. MELETIS J. *Atlas of hematology*. 3rd ed. Nireas Publ Inc, Athens, 2009:399–403

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