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CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology Quiz – Case 48

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2016, 33(4):566–568

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A 35-year-old woman presented to the outpatient department because of fever during the last fifteen days and symptoms from the upper respiratory tract. She was treated with trimethoprim/sulphamethoxazole and the fever resolved after few days. Her past medical history was unremarkable.

On physical examination in admission revealed petechiae in extremities, cervical and supraclavicular microlymphadenopathy and mild splenomegaly. The liver was not palpable.

Laboratory tests were as follows: Ht 20%, Hb 6.8 g/dL, WBC 3.3×10^9/L (neutrophils 18%, lymphocytes 40%, monocytes 15%, basophils 2%, blasts 25%) (figures 1–3), platelets 20×10^9/L, BUN 0.18 mg/dL, total bilirubin 0.70 mg/dL, SGOT 65 IU/L, SGPT 60 IU/L, alkaline phosphatase 198 IU /L, γ-GT 20 IU/L, LDH 1,890 IU/L, uric acid 8.2 mg/dL and total proteins 8.5 g/dL (a diffuse hypergammaglobulinemia was noted on electrophoresis).

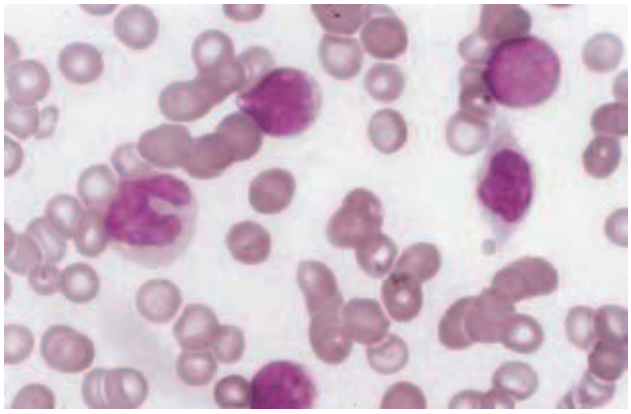

Figure 1

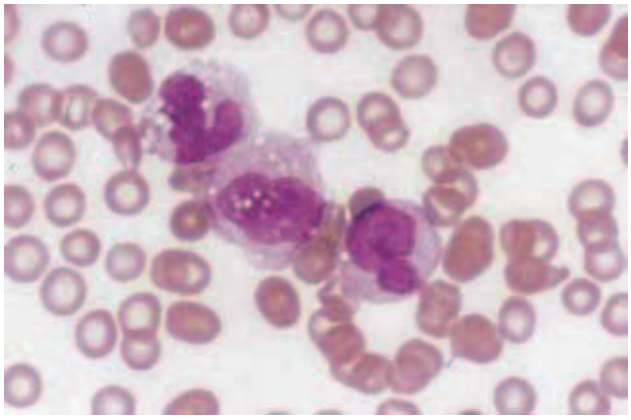

Figure 2

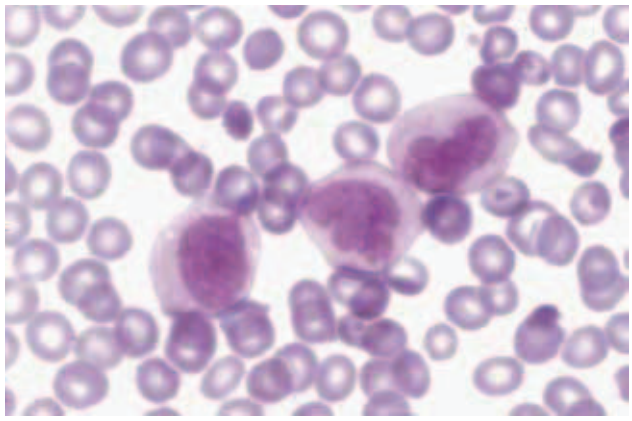

Figure 3

The bone marrow aspiration revealed an infiltration of 80% by blasts (figures 4–6). The patient was treated with cytostatics and G-CSF for sixteen days till the WBC count was 1.6×10^9/L and the neutrophil count was 0.9×10^9/L. After the second cycle of induction treatment the bone marrow aspiration revealed erythroid hyperplasia and the blasts infiltration was dramatically decreased (>5%), although platelet transfusions were necessitated.

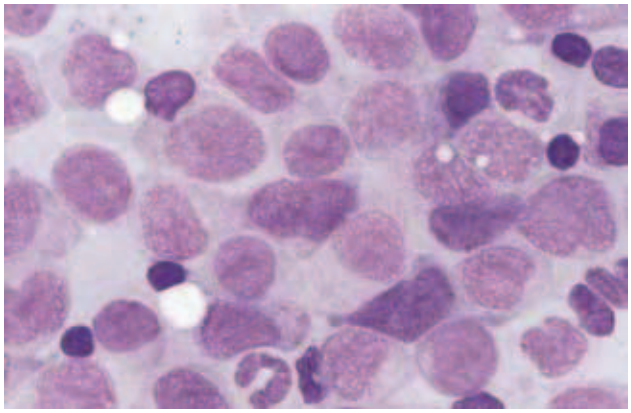

Figure 4

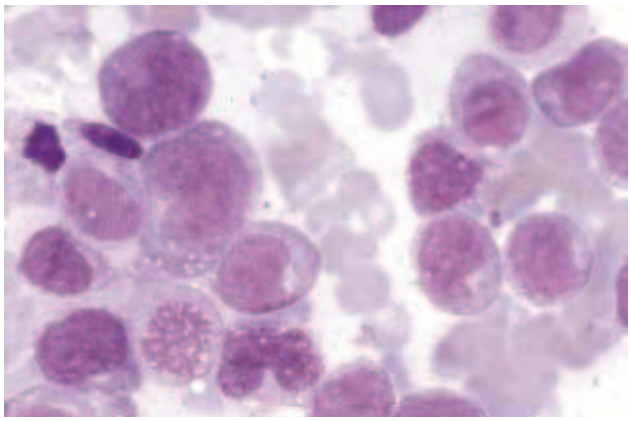

Figure 5

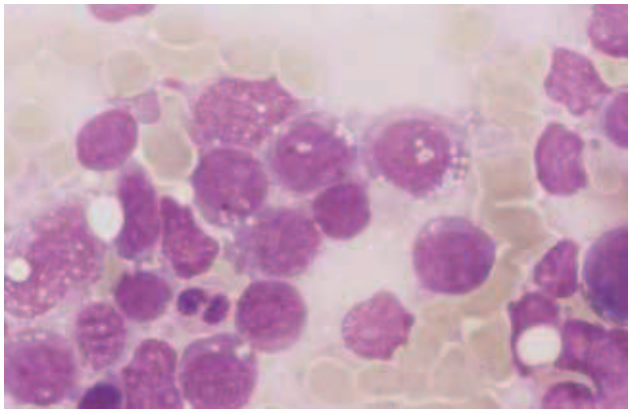

Figure 6

After the induction therapy a slight white line was presented in the nails of both extremities. Two months later they had the morphology of figures 7 and 8. This sign was being detected for six months even though the patient's disease was in complete remission under maintenance therapy.

Comment

M5a (acute monoblastic leukemia): Blasts of large size in the bone marrow and peripheral blood, monoblasts >80% of non-erythroid bone marrow cells, fine chromatin network, one or more nucleoli, abundant basophilic cytoplasm, cells with projections and pseudopodia formation, coarse reddish granules, many promonocytes.

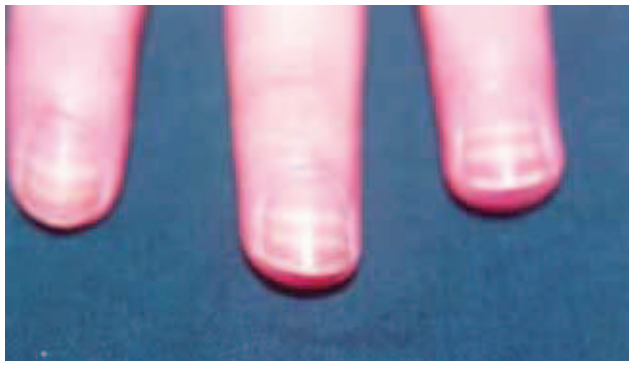

Figure 7

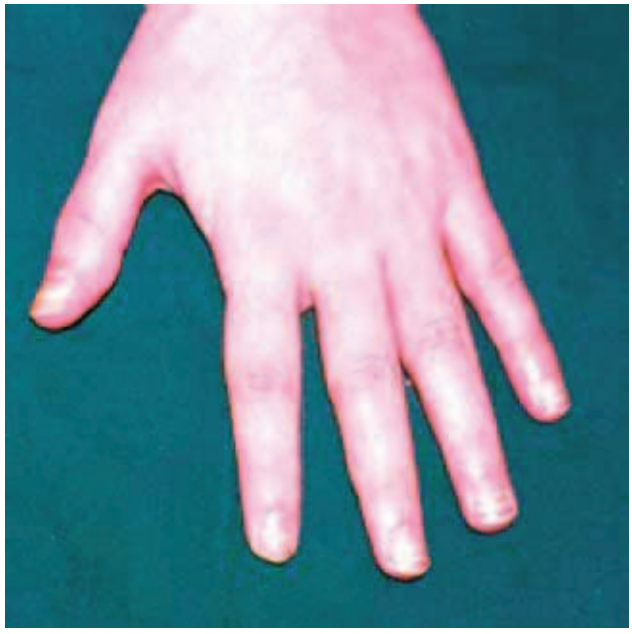

Figure 8

Blastic cells of large size with a large folded or oval nucleus, fine chromatin appearance, multiple nucleoli and abundant light or deep basophilic cytoplasm with pseudopodia formation sometimes containing azurophilic granules, vacuoles and rarely Auer bodies. Sometimes, monoblasts may present with phagocytosis of blood cell elements and phagocytozed cysts and rarely there is an hemophagocytosis picture in the bone marrow which must be differentiated from other malignant hemophagocytosis syndromes [absence of t(8;16) often associated with the M5a with concomitant hemophagocytosis]. In the peripheral blood the circulating abnormal cells are more mature than the bone marrow cells.

Non-specific esterase (ANAE) staining: Heavy positive and sensible to NaF inhibition (in 10% of cases is negative). A-naphthyl butyrate esterase (ANBE) staining: Positive (10% of cases is negative). Peroxidase, specific esterase (NACE), acid phosphatase and PAS staining: Weakly positive or negative. PAS staining: Varying positivity, some blasts are negative and others present a diffuse pattern of staining with fine positive granulation, while the reaction is rarely coarse with diffuse or concourse positivity.

M5b (acute monocytic leukemia with differentiation): Monoblasts, promonocytes and monocytes, monoblasts <80% of non-erythroid bone marrow cells and the remaining cells are mainly promonocytes and monocytes, monocytic percentage of blood higher than bone marrow, predominance of promonocytes in the bone marrow, large celebriform nucleus, well visible nucleoli, light basophilic cytoplasm, azurophilic granules.

Blasts with a large folded nucleus, fine chromatin network, multiple nucleoli and abundant cytoplasm with pseudopodia formation. In the bone marrow there may be a predominance of the promonocytes, while in the peripheral blood there are mature as well as immature cells of the monocytic series in different proportions. In comparison with the monoblasts, the promonocytes have a larger, irregular or folded nucleus, while the cytoplasm contains small azurophilic granulation and color, varying from light acidophilic to a blue/ashy coloration.

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