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CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology Quiz – Case 50

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2016, 33(6):842–844

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A 48-year-old woman was admitted to our Department with progressive anemia, thrombocytopenia, and bone pain of small joints.

Her past medical history included a splenectomy at the age of six due to a car accident. The physical examination showed pale skin and sclera, a healed splenectomy scar, and varicosis of both legs. The liver was enlarged to 11 cm below the right costal margin.

Laboratory examinations revealed normochromic anemia with normal indices (Hb 8.9 g/dL, erythrocytes 2.9×10^{12}/L, Ht 25%), reticulocytosis (7.2%), slight thrombocytopenia (104×10^{9}/L) and slight leukocytosis (13.4×10^{9}/L) with a normal differential blood smear. Increased levels of total alkaline phosphatase (345 IU/L), uric acid (8.6 mg/dL), gamma glutamyl transferase (66 IU/L), ferritin (2,820 μg/L), and parathyroid hormone (142 ng/L) were found. Protein electrophoresis showed an IgGκ monoclonal component with normal levels of the other fractions. Quantitative analysis of immunoglobulins was within normal limits. Proteinuria (1,062 mg/24h) was found but no BJ protein was detected. 1,25-dihydroxy-vitamin D was reduced to 29.2 pmoL/L. Sonography confirmed hepatomegaly of 16 cm and cholecystolithiasis.

Radiological findings showed general osteoporosis and osteosclerosis of the pelvis and the thigh. A bone marrow aspirate and biopsy revealed the diagnosis (figures 1–6), while the genomic analysis showed the 1226G/1448C genotype. Plasma levels of TNF-α, IL-6 and IL-8 were elevated to 31 pg/mL, 32 pg/mL, and 14 pg/mL, respectively, while IL-1 levels were normal.

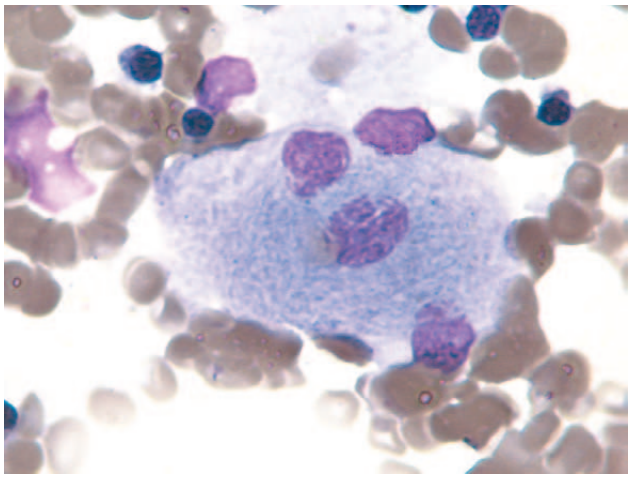

Figure 1

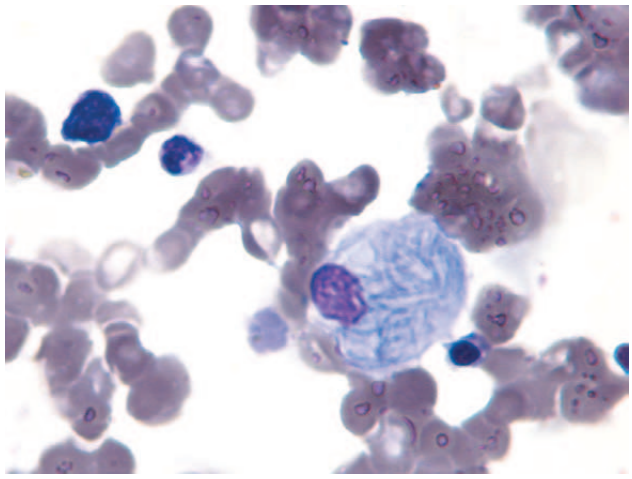

Figure 2

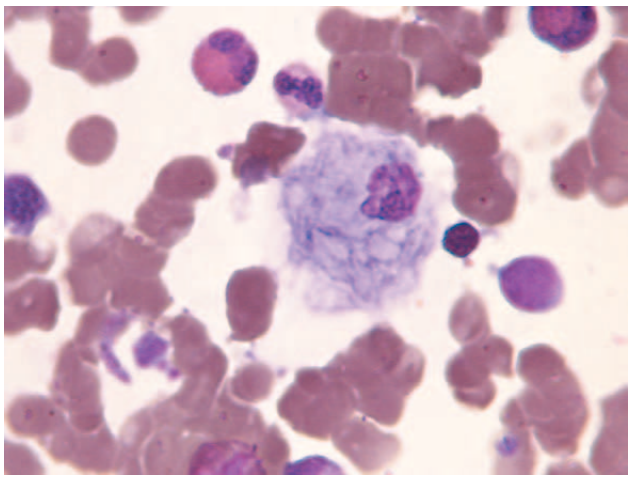

Figure 3

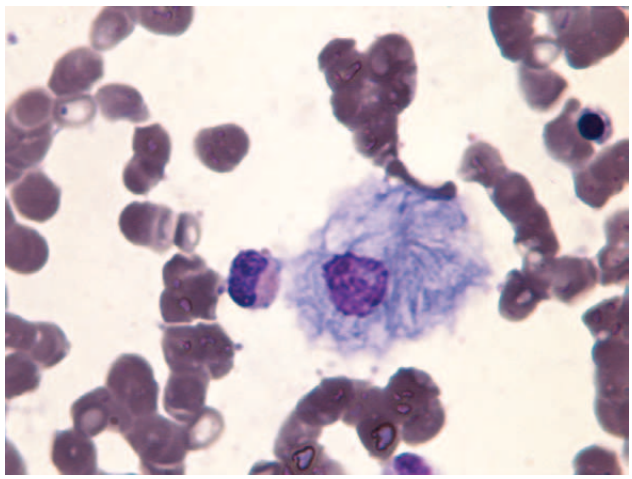

Figure 5

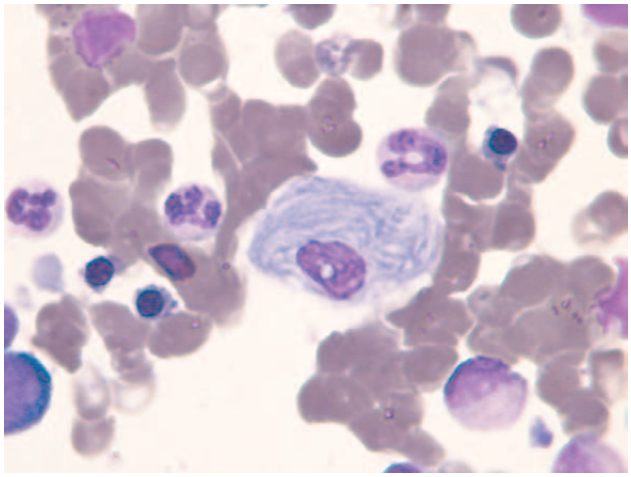

Figure 4

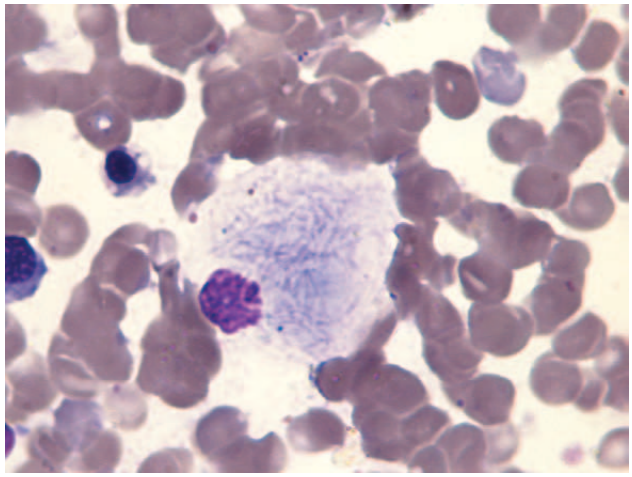

Figure 6

The appropriate treatment was started, as well as with oral bisphosphonates and vitamin D substitution. The Hb and platelet counts were increased while the paraprotein and proteinuria were vanished. Patient remains in an excellent condition under continuous follow-up.

Comment

Macrophages containing lipoids are reticuloendothelial cells with vacuoles containing lipoids. The Gaucher cells are of large size, pale cells with foamy cytoplasm or fibril formation usually appearing as "onion leaves" in the cytoplasm. They represent a hereditary disorder of glucocerebroside metabolism (glucosylseramide) because of enzyme glycosidase deficiency inherited as a dominant inheritance type. The Niemann-Pick cells often have a round nucleus, cytoplasm full of small sized hyaloid droplets giving a foamy, reddish, spotty appearance (accumulation of sphingomyelin, especially in splenic, hepatic, bone marrow and lymph node monocytes, because of hereditary disorder of lipid metabolism transmitted by recessive type). The sea blue histiocytes have abundant blue cytoplasm full of dark diffuse granules (accumulation of phospholipids and sphingomyelin, as well as decrease of sphingomyelinase activity, inherited as an autosomal recessive type). Similarly, Gaucher and Niemann-Pick cells are present in other lipidosis, as well as in multiple myeloma, in chronic myelogenous leukemia or during diseases accompanied by a precocious destruction of granulocytic, erythroid or megakaryocytic series (e.g., thalassemia, chronic myelogenous leukemia, immune thrombocytopenic purpura, destruction and phagocytosis of cellular elements, especially of membranes). In hereditary lipidosis, accumulation in phagocytes of substances is according to the enzyme deficiency of lipid metabolism. Many sea blue histiocytes are present in the related syndrome (autosomal recessive inheritance, splenomegaly, thrombocytopenic purpura) and in Niemann-Pick disease, while fewer numbers are present in hyperlipoproteinemia, in acyl-transferase deficiency, in chronic myeloid leukemia (CML), in polycythemia, in chronic immune

thrombocytopenic purpura, in thalassemia, in sickle cell anemia, in sarcoidosis, in chronic granulomatous disease, and in different types of lipidosis.

References

1. MELETIS J. *Atlas of Hematology.* 3rd ed. Nireas Publ Inc, Athens, 2009:571–577
2. MASI L, BRANDI ML. Gaucher disease: the role of the specialist on metabolic bone diseases. *Clin Cases Miner Bone Metab* 2015, 12:165–169
3. DANDANA A, BEN KHELIFA S, CHAHED H, MILED A, FERCHICHI S. Gaucher disease: clinical, biological and therapeutic aspects. *Pathobiology* 2016, 83:13–23
4. MISTRY PK, BELMATOUG N, vom DAHL S, GIUGLIANI R. Understanding the natural history of Gaucher disease. *Am J Hematol* 2015, 90(Suppl 1):S6–11
5. NAGRAL A. Gaucher disease. *J Clin Exp Hepatol* 2014, 4:37–50

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