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CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology Quiz – Case 73

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2026, 43(1):140–142

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A 66-year-old man with a history of heavy alcohol consumption presented to the emergency department because of severe fatigue, generalized weakness, and poor performance status (ECOG 3-4). The complete blood count showed anemia (hemoglobin, 10.0 g/dL) and thrombocytopenia (platelet count, 30×10^9/L), increased reticulocyte count (3.9%), and increased lactate dehydrogenase 500 U/L (normal, <246 U/L). Ten days before the current presentation he had been discharged from the hospital after a prolonged hospitalization in the cardiology ward for presumed alcoholic cardiomyopathy and subsequently in the internal medicine ward for presumed alcoholic liver disease. Hematologic abnormalities had been noted during his hospitalization but they were attributed to alcohol. Clinical examination revealed hepatosplenomegaly. Abdominal ultrasonography (US) showed a large spleen measuring 18 cm without focal lesions. In addition, an abdominal CT scan showed enlargement of intra-abdominal, retroperitoneal, and pelvic lymph nodes and infiltration of the pancreas. A peripheral-blood smear showed dacryocytes and sporadic circulating nucleated red blood cells. Hematinics were normal. Direct antiglobulin test was negative. We performed bone marrow aspiration and biopsy. The results of the bone marrow aspiration are shown in the following images (figures 1 to 7).

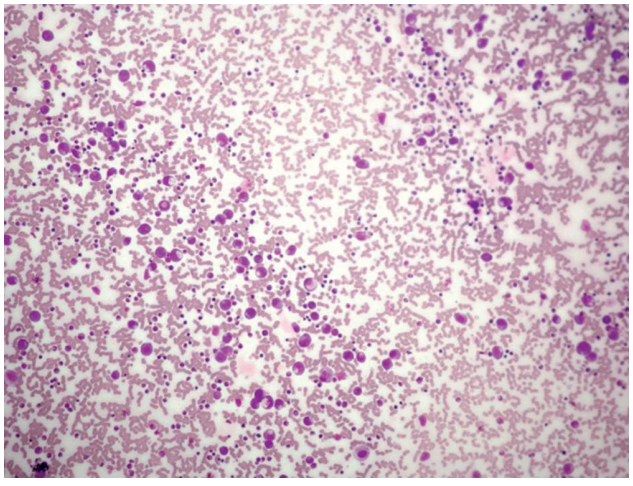

Figure 1.

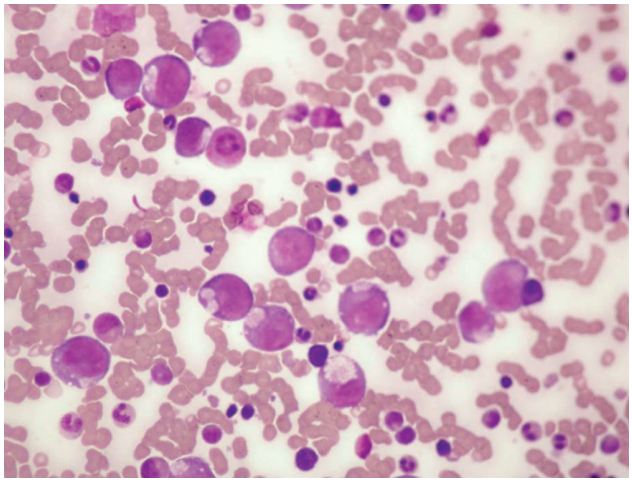

Figure 2.

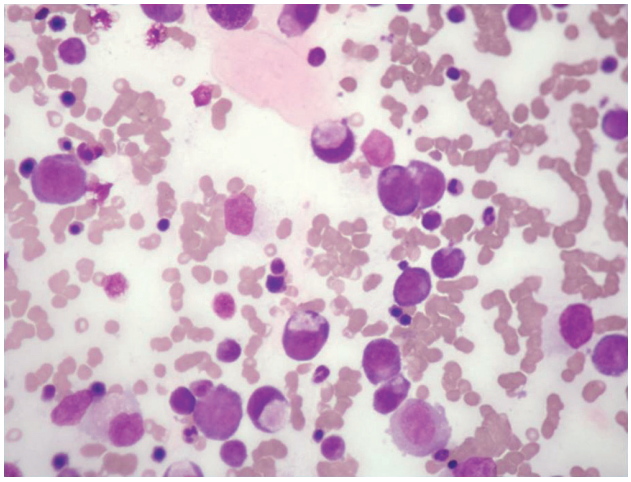

Figure 3.

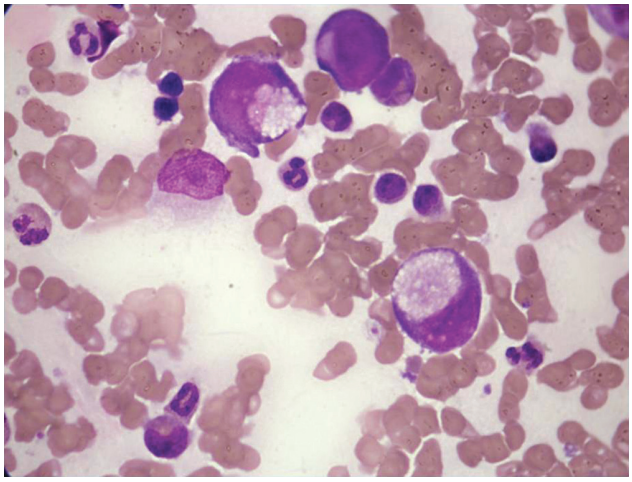

Figure 6.

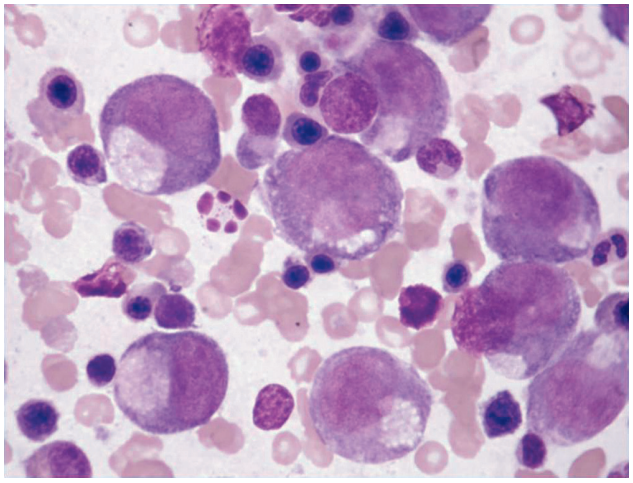

Figure 4.

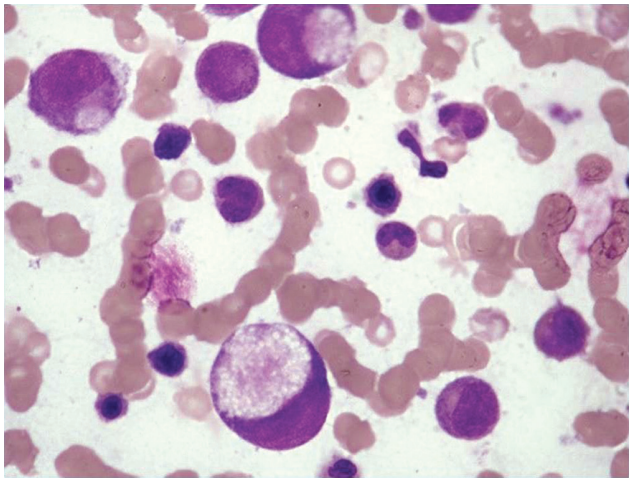

Figure 7.

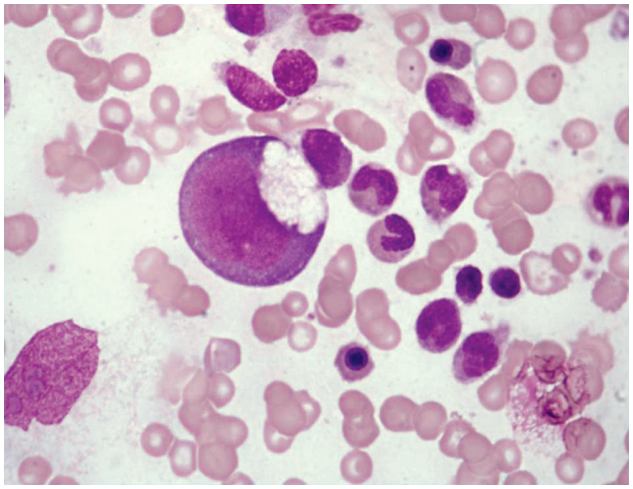

Figure 5.

Comment

The marrow is diffusely infiltrated with large abnormal cells, many of which have a "signet-ring" like morphology. They are recognized by their large vacuole next to the nucleus. There is no evidence of cellular clusters or aggregates. Signet-ring cells are typically identified in carcinomas, and predominantly in mucin producing adenocarcinomas. Gastric cancer is most common (90% of cases) (figure 8 shows infiltration of bone marrow by a signet-ringcell gastric carcinoma), followed by breast, prostate, pancreatic, urinary bladder, gallbladder, and colon cancer. Cellular clusters or aggregates are a characteristic finding in these cases. Signet-ring-cell carcinomas stain strongly with period-acid Schiff (PAS) stain. Signet-ring carcinomas are typically highly aggressive tumors associated with poor prognosis. Signet-ring melanomas have also been described. In hematology, signet-ring cells have been reported in patients with multiple myeloma, lymphoplasmatic

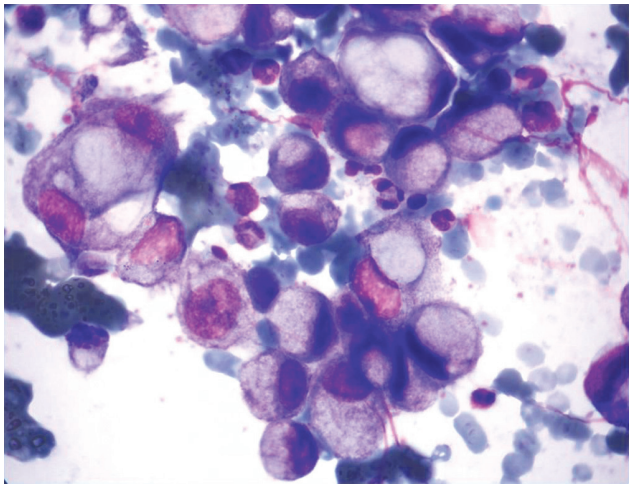

Figure 8.

lymphoma/Waldenström macroglobulinemia, follicular lymphoma, diffuse large B-cell lymphoma, and mu heavy chain disease (μHCD). Occasionally, macrophages and histiocytes may have a signet-ring-like appearance especially in fluids, as shown in figure 9 which is a cerebrospinal-fluid (CSF) preparation from a patient with chronic meningitis. These macrophages or histiocytes should not be confused with malignant cells.

In this case, the bone marrow was infiltrated by signet-ring-cell diffuse large B-cell lymphoma (DLBCL, NOS). On immunohistochemical staining, the cells were C20+, CD79a+, PAX5+, bcl6+, bcl2+, CD10-, MUM1+, SIg/ClgM(κ)+, CD30-, CD138-, CD5-, cyclin D1-, CD23-, MYC-, CD3-, EBER-, EMA-, cytokeratins AE1–AE3-. The patient received supportive care for cessation of alcohol and R-CHOP (rituximab, cyclophosphamide, adriamycin, vincristine, methylprednisolone) chemotherapy for the lymphoma.

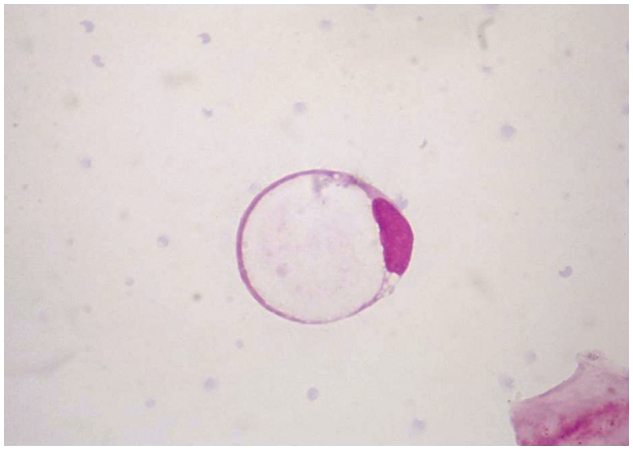

Figure 9.

Diffuse large B-cell lymphomas can have a variety of morphological appearances. The most common is the "centroblastic variant" comprising at least 80% centroblasts. Similarly, the "immunoblastic variant" is defined by the presence of more than 80% immunoblasts. In cases in which both immunoblasts and centroblasts exist in biopsy, the morphological phenotype is called "mixed variant". The "Burkitt-like" and "anaplastic" variants consist of cells that resemble those of the Burkitt and anaplastic large-cell lymphoma, respectively. The "plasmablastic variant" constitutes a different entity which is immunophenotypically distinct and expresses plasma-cell markers instead of B-cell markers. Rare variants include "spindle-shaped", "signet-ring" and "multilobulated-cell" diffuse large B-cell lymphoma.

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