A 58-year-old woman was hospitalized because of weakness, edema of the extremities and ascites. Physical examination revealed pallor and liver enlargement. Biological findings were as follows: hemoglobin 9.3 g/dL, leukocyte count 72.8 x 10^9/L, with 85% atypical cells, platelet count 131 x 10^9/L, increased lactic dehydrogenase (780 U/L) and β2-microglobulin (16.9 mg/L). Serum protein electrophoresis revealed severe hypogammaglobulinemia, and monoclonal kappa light chain (800 mg/dL) was found in the urine. No liver or kidney dysfunction was detected by serum biochemical determinations and no abnormalities were seen on the X-ray study.

Bone marrow aspirate smears revealed almost complete replacement of the bone marrow by a diffuse infiltration of cells showing similar features to those observed in the peripheral blood smears. Many of these cells were large, with abundant, moderately basophilic cytoplasm, and contained two to three distinct nuclear lobes. Other cells had cleaved nuclei, giving them a monocytoid appearance. The nuclei with lobulation were often of different size and occasionally had prominent nucleoli (Figure 1). Neoplastic cells were peroxidase, PAS and Sudan negative, and acid phosphatase positive, with the reactivity distributed in granules in the cytoplasm. A massive infiltration of cells with cleaved nuclei was also noted in the sinusoids of a liver biopsy that was performed to exclude hepatic disease as being the origin of the ascites (Figure 2). Flow cytometry of bone marrow cells showed an intense reactivity with CD38 and CD13 antibodies and the presence of cytoplasmic κ light chains. The stem cell antigen CD34, and the myelomonocytic antigens CD33, CD14 and CD15 were negative.

Plasma cell leukemia has been defined as a clonal proliferation in which the number of plasma cells in the blood is greater than 20 percent of the total leukocytes or the absolute plasma cell count exceeds 2 x 10^9/L. The neoplastic cells in most cases closely resemble normal plasma cells, although sometimes plasma cell leukemia with aberrant morphologic features (cleaved, monocytoid or multilobated nuclei) has been reported. These morphologic character-
or typical plasma cells, however the immunopheno-
type findings allowed us to make the final diagnosis
of plasma cell leukemia.

The cytogenetic study performed on bone marrow
cells showed an abnormal cellular clone with complex
karyotype in all 26 mitoses examined: 46,XX, del(1) (q21), +der(1), -5,-8,t(12,?) (q22,?), -14, add(14) (q32), +3mar. Although these abnormalities are not
specific to PCL, abnormalities of chromosome 14, pri-
marily 14q+, are present in 50% of the patients suffer-
ing the PCL with abnormal karyotype. Besides, dupli-
cations and deletions of chromosomes 1 and 8 are also
commonly involved in PCL. Therefore, karyotype find-
ings were very useful in order to confirm this patient’s
diagnosis.

The patient was treated monthly with VAD (vin-
cristine, doxorubicin and dexamethasone) cycles.
After receiving two cycles both clinical and biochem-
ical data improved but the patient suddenly died
from cerebral hemorrhage. We conclude that recog-
nition of aberrant features of plasma cells is helpful
in the differential diagnosis of plasma cell leukemia
and myeloma from other hematopoietic neoplasms
and occasionally from metastatic tumors.

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