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ACUTE PROMYELOCYTIC LEUKEMIA COMPLICATING CHEMO-RADIOTHERAPY FOR MULTIPLE MYELOMA

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A 61-year-old woman was admitted to our Department for severe gastrointestinal bleeding. She had been diagnosed with IgAκ multiple myeloma three years earlier and had been treated with both chemotherapy and radiotherapy (this latter for spinal cord compression by extramedullary myelomatous tissue).

On admission, gastroscopy showed a bleeding gastric ulcer and blood cell counts were the following: Hb 4.2 g/dL, WBC 1.9×10^9/L (differential count: neutrophils 43%, eosinophils 4%, basophils 1%, lymphocytes 47%, monocytes 5%), and platelets 9×10^9/L. Bone marrow was heavily infiltrated by abnormal plasma cells, and abnormal promyelocytes were also found (Figures 1 and 2). Within 48 hours of admission PML-RARα gene rearrangement[1] was identified in the patient's bone marrow by RT-PCR (Figure 3) and a diagnosis of secondary acute promyelocytic leukemia (APL) was formulated.

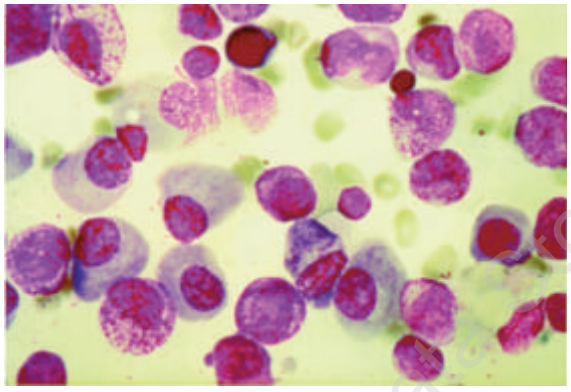

Figure 1. Bone marrow aspirate showing many plasma cells and abnormal promyelocytes. MGG x 640.

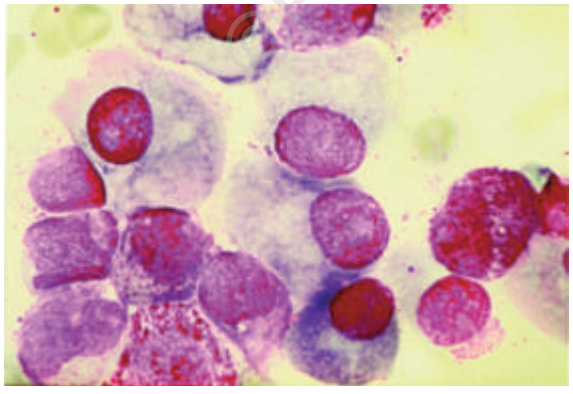

Figure 2. Higher magnification shows a promyelocyte and a cluster of plasma cells. MGG x 1200.

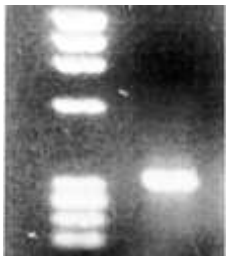

Figure 3. Detection of PML-RARα fusion by RT-PCR in a bone marrow sample (right lane; left lane shows molecular weights expressed in base pairs). The ethidium bromide-stained gel shows a 326-bp band corresponding to the BCR1 PML-RARα junction.

Treatment with all-trans retinoic acid (ATRA) induced a partial, transient remission; however, the woman eventually died of sepsis. APL has seldom been observed as a secondary malignancy;[2] most of the acute leukemias complicating antineoplastic chemotherapy and/or radiotherapy are usually either myelomonocytic or unclassifiable. Albeit for only a short period of time, the patient clearly benefitted from treatment with ATRA, which was essentially delivered on the basis of the molecular diagnosis.

References

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2. Amadori S, Papa G, Anselmo AP, Fidani P, Mandelli F, Biagini C. Acute promyelocytic leukemia following ABVD (doxorubicin, bleomycin, vinblastine, and dacarbazine) and radiotherapy for Hodgkin's disease. Cancer Treat Rep 1983; 67:603-4.

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