

### Bone remodeling in acute myeloid leukemia

Hypercalcemia is a rare feature of acute myeloid leukemia (AML) and it has been associated with direct skeletal invasion by malignant cells, ectopic parathyroid hormone production, and effects of bone-reabsorbing cytokines.<sup>1</sup>

We recently studied a 70-year old patient with AML without differentiation who presented with bone pain, hypercalcemia and normal levels of parathyroid hormone. A chest X-ray demonstrated decreased cortex with intra-cortical erosion cavities dissecting into the marrow space. Histopathologic examination of the bone showed massive infiltration of leukemia cells and marked bone remodeling. Our report is consistent with the mechanism proposed by several investigators, that acute leukemia cells produce an osteoclast-activating-factor-like substance that causes osteoclast proliferation and increased osteoblast activity, resulting in hypercalcemia and increased rates of bone remodeling.

Gerlando Quintini,\* Vincenzo Barbera,\* Vito Franco°

\*Division of Hematology with BMT Unit; °Institute of Anatomy and Histopathology, University of Palermo, Italy

Correspondence: Gerlando Quintini, M.D., Divisione di Ematologia con Trapianto, Università degli Studi di Palermo, via del Vespro 129, 90127 Palermo, Italy.

Phone: international +39.091.6554314. Fax: international +39.091.6554402. E-mail: [gequint@tin.it](mailto:gequint@tin.it)

### References

1. Gewirtz AM, Stewart AF, Vignery A, Hoffman R. Hypercalcaemia complicating acute myelogenous leukaemia: a syndrome of multiple aetiologies. *Br J Haematol* 1983; 54:133-41.

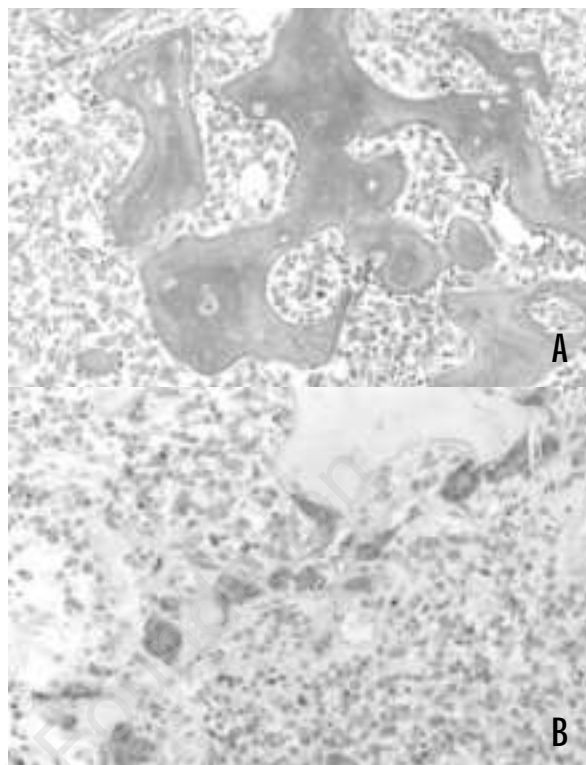


Figure 1. A. Bone marrow histological picture: note the significant bone remodelling and the undifferentiated acute leukemia cells diffusely infiltrating the marrow spaces. B. Marked osteoclast activity at the border of the bone trabeculae (ABC, PGM1, x 400).



Figure 2. Chest X-ray showing multiple osteolytic areas bilaterally in the humeri and scapulae.