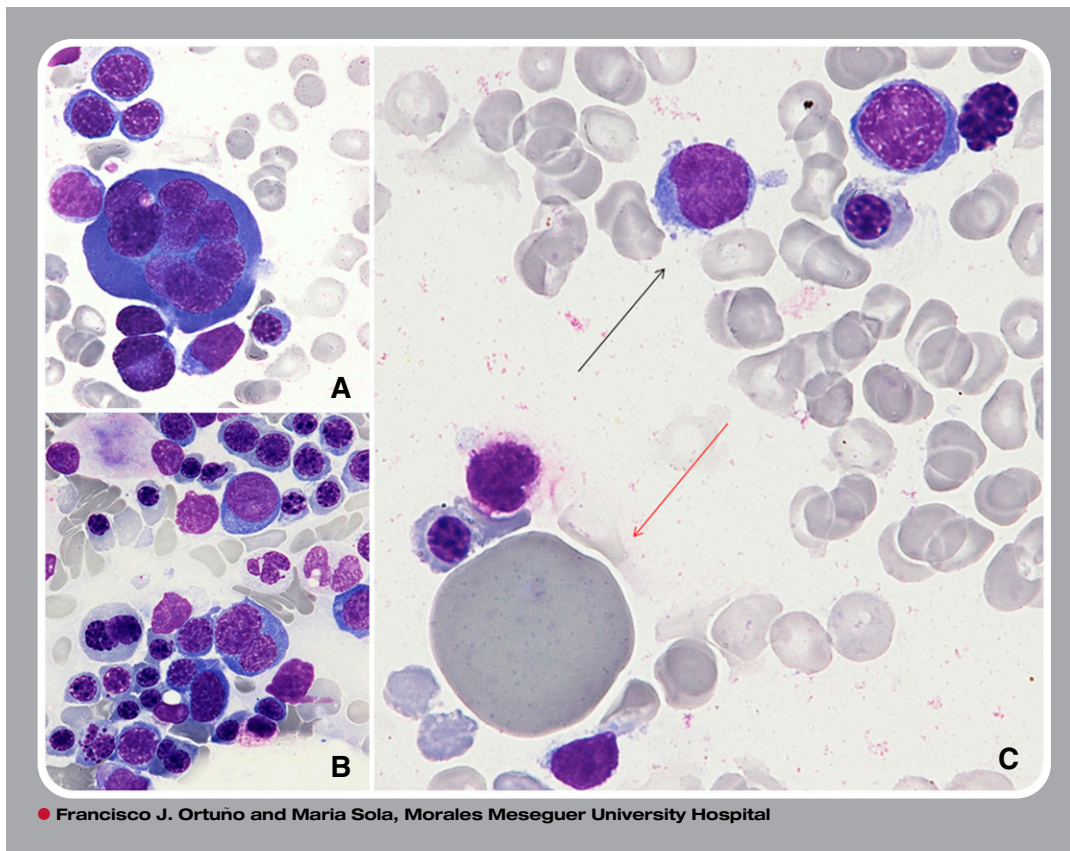


Extreme dyserythropoiesis in the setting of acute erythroid leukemia



A 38-year-old man was admitted because of cough, fever, headache, and malaise. He was pale but otherwise in good general condition. The hemogram showed: white blood cell count, $1.7 \times 10^9/L$; hemoglobin, 97 g/L (mean corpuscular volume, 99 fL); and platelets, $7 \times 10^9/L$. A blood smear showed marked anisocytosis, anisochromia, and poikilocytosis; no blast cells were observed. A bone marrow aspirate showed 82% erythroblasts and marked dyserythropoietic signs (panels A-B) including extraordinarily giant polychromatophilic red blood cells with prominent basophilic stippling (panel C, red arrow). In addition, 12% blasts (myeloperoxidase positive; black arrow) were counted. The karyotype was 46 XY, -7, +21 [14]/46 XY [6]. A diagnosis of acute erythroid leukemia (AEL) erythroid/myeloid or French-American-British M6 acute myeloid leukemia was achieved. The patient entered complete remission after a 3+7 idarubicin–Ara-C regimen and is currently scheduled for a matched unrelated donor bone marrow transplantation.

In their later differentiating stages in bone marrow, erythroblasts undergo a decrease in cell size, nuclear extrusion, and internal organelle degradation before traversing the sinus endothelium. In the setting of the continuum of myelodysplastic syndrome/AEL, marked abnormalities of erythroid maturation in the bone marrow niche occur as seen in the 3 panels. We herein show an extreme example of asynchronism between enucleation and cell size reduction.



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