

Granular ALL in an Elderly Woman Diagnosed by Flow Cytometric Immunophenotyping

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Sir,
Myeloblasts are classically described as cells with a moderate amount of granular pale basophilic cytoplasm and multiple prominent nucleoli while lymphoblasts typically are smaller with scanty agranular deep blue cytoplasm and inconspicuous nucleoli [1]. We would like to share a case where this classical morphological appearance proved to be a diagnostic red herring that was resolved only with the help of immunophenotyping.

A 78-year-old previously healthy lady presented with gradually worsening symptomatic anemia for the last 4 months requiring 6 units of packed red cell transfusion. Physical examination revealed only mild pallor with no organomegaly or lymphadenopathy. Her hemoglobin (immediately post-transfusion) was 12.5 g%, total leukocyte count $13.4 \times 10^9/l$ and platelets $35 \times 10^9/l$ with a reticulocyte count of 2.1 %. The peripheral smear revealed 59 % blasts that were 2–3 times the size of small lymphocytes with high NC ratio, clumped chromatin, regular nuclear contours and prominent nucleoli. Most showed coarse, variably-sized azurophilic cytoplasmic granules. No Auer rods or Phi bodies were seen. The blasts were cytochemically negative for myeloperoxidase (MPO) and periodic acid-Schiff stains. The provisional diagnosis was acute leukemia, morphologically undifferentiated to

myeloid (the latter in view of the cytoplasmic granularity and nucleoli). A subsequent bone marrow aspirate too revealed 85 % blasts of similar granular nature without any significant dysplasia in the few residual hematopoietic precursors present (Fig. 1).

Flow cytometric immunophenotyping revealed a single large cluster in the progenitor region (dim CD45, low to moderate side scatter) that co-expressed CD19 and CD10 along with CD34, HLA-DR, terminal deoxynucleotidyl transferase (TdT) and dim CD123 and CD79a along with CD13 (Fig. 2). The blasts were negative for CD20 as well

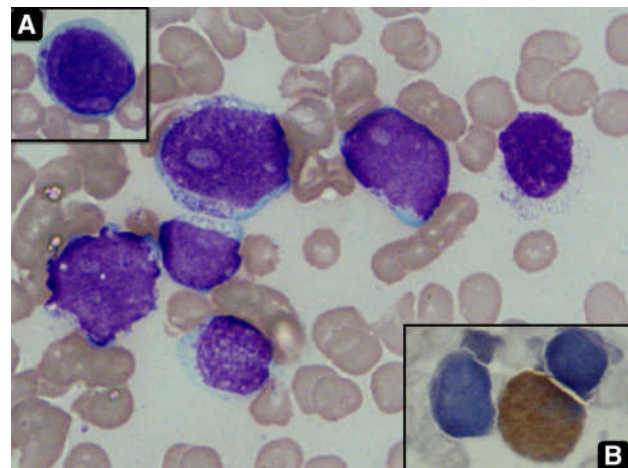


Fig. 1 Bone marrow smears showed 85 % blasts that were 2–3 times the size of mature lymphocytes with high N:C ratio, clumped chromatin and regular nuclear contours. A few showed nuclear indentations and prominent nucleoli. The cytoplasm was coarsely granular; however no Auer rods were seen. (May Grunwald Giemsa, 1000 \times). *Inset A* shows similar blasts in the peripheral smear. (May Grunwald Giemsa, 1000 \times). *Inset B* shows blasts negative for myeloperoxidase. A myelocyte serves as an internal control. (MPO, 1000 \times)

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