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# Acute Promyelocytic Leukemia with Basophilic Differentiation: A Rare Variant

## Bazofilik Farklılaşma Gösteren Akut Promiyelositik Lösemi: Nadir Bir Varyant

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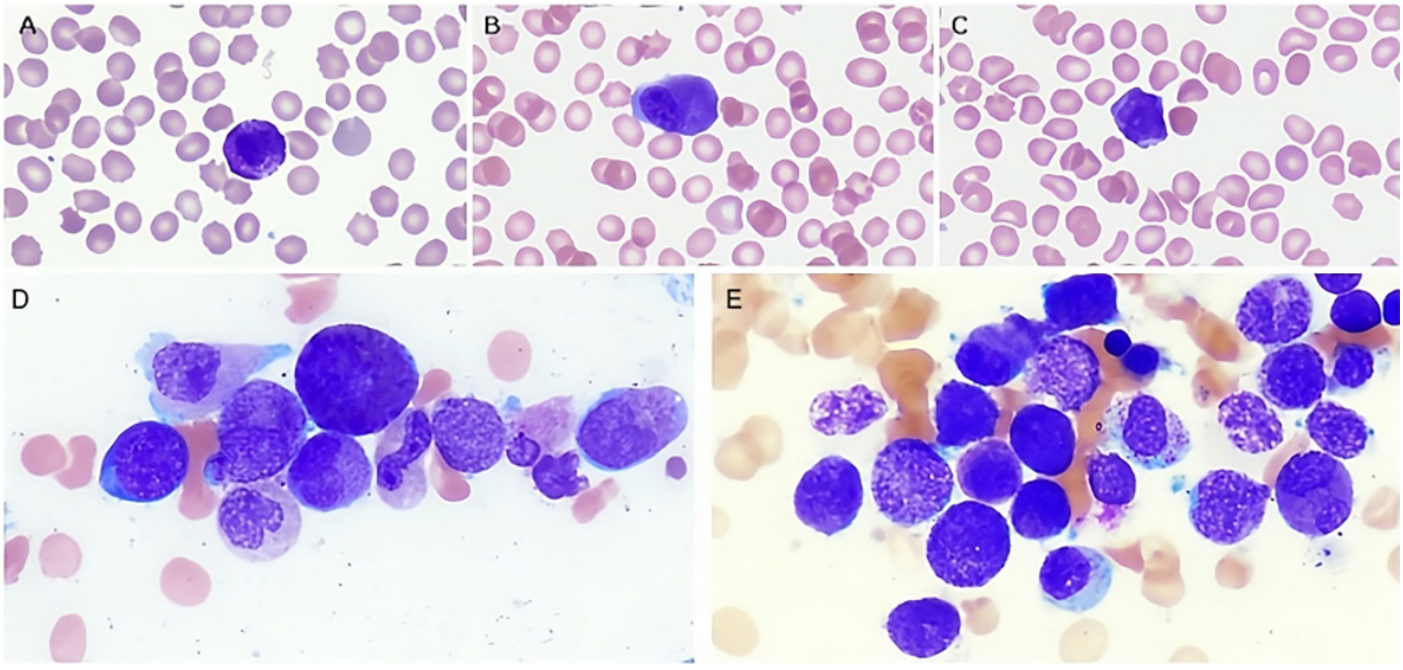


**Figure 1.** (A, B, C) Wright-Giemsa stain, 100$^{x}$ objective, original magnification 1000$^{x}$. Peripheral blood smear showing blasts with intense azurophilic granules. (D, E) Wright-Giemsa stain, 100$^{x}$ objective, original magnification 1000$^{x}$. Bone marrow smear revealing blasts with irregular nuclei, some binucleated, with dispersed chromatin, prominent nucleoli, and frequent cytoplasmatic azurophilic granules.

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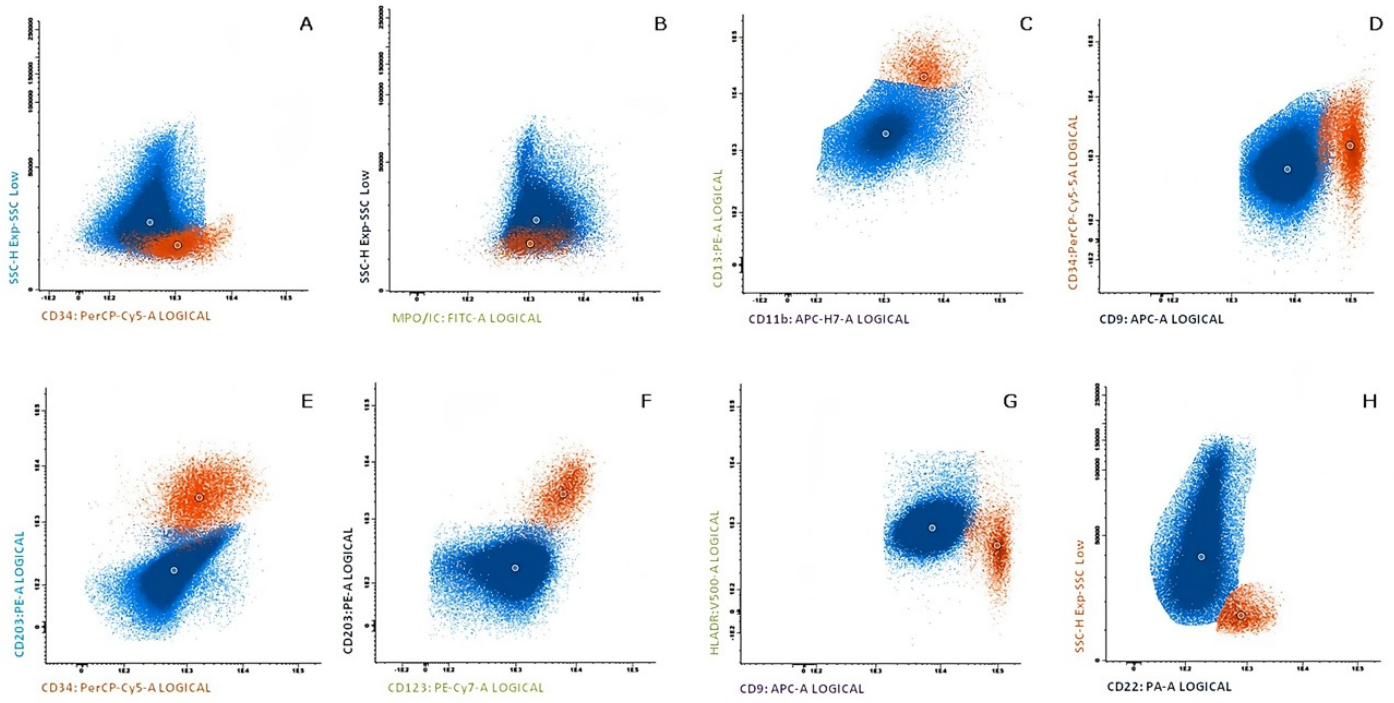


**Figure 2.** (A, B, C, D, E, F, G, H) Bone marrow flow cytometry analysis. Two populations were identified, which are marked here with blue and orange. The blue population shows abnormal promyelocytes positive for CD117, CD13 (dim), CD33, CD56, and MPO, representing 76% of the total cellularity. The orange population represents 4% abnormal cells with basophilic differentiation positive for CD34, CD35, CD22, CD203c, CD9, CD123 (bright), and MPO.

A 46-year-old man presented after colon surgery with hemoglobin, neutrophil, and platelet counts of 106 g/L, $0.63x10^9$/L, and $102x10^9$/L, respectively. Coagulation tests showed respective activated partial thromboplastin time, prothrombin time, Clauss fibrinogen, and D-dimer values of 26.9 s, 15.4 s, 164 mg/dL, and 36,727 ng/mL. Peripheral blood smear revealed anisopoikilocytosis, leukoerythroblastic reaction, and blasts with azurophilic granules without Auer rods. Bone marrow aspirates showed 60% of the cells being abnormal promyelocytes with azurophilic granules positive for peroxidase staining (Figure 1). Immunophenotyping detected 76% $CD117^+$, $CD13^{+(dim)}$, $CD33^{+(bright)}$, $CD56^+$, $CD123^{+(dim)}$, $CD9^{+(dim)}$, $MPO^+$, $CD34^-$, $HLA\text{-}DR^-$, and $CD203c^-$ abnormal promyelocytes, and 4% of these cells were $CD34^{+(10\%)}$, $CD35^+$, $CD22^+$, $CD203c^+$, $CD9^+$, $CD123^{+(bright)}$, $MPO^+$, $CD117^-$, and $HLA\text{-}DR^-$ (Figure 2). The tryptase level was 7.55 µg/L. RT-PCR demonstrated a bcr3 *PML/RARA* transcript without additional alterations in the conventional karyotype or fluorescence in situ hybridization. Acute promyelocytic leukemia (APL) with basophilic differentiation was diagnosed. Treatment with all-trans retinoic acid and arsenic trioxide was initiated, reaching morphological complete remission, negative minimal residual disease, and 0.1% *PML/RARA* gene rearrangement. No bleeding complications or hyperhistaminemia-related symptoms occurred during treatment.

APL with basophilic maturation represents one-third of APL cases. The basophil-associated markers CD203c and CD22 have predictive ability for increased bleeding risk and reduced overall survival. Severe bleedings are still the main cause of treatment failure and early mortality in APL patients, making the diagnosis of this variant important [1,2,3,4,5].

**Keywords:** Acute promyelocytic leukemia, Flow cytometry, Diagnosis, Basophilic maturation

**Anahtar Sözcükler:** Akut promiyelositik lösemi, Akım sitometri, Teşhis, Bazofilik olgunlaşma

## Ethics

**Informed Consent:** Informed consent was obtained from the patient reported in this study.

## Authorship Contributions

Surgical and Medical Practices: M.P.Z., C.B.C.; Concept: A.F.M.A., S.E.S., F.A.G.F.; Design: A.F.M.A., S.E.S., F.A.G.F.; Data Collection or Processing: A.F.M.A., S.E.S., F.A.G.F.; Analysis or Interpretation: A.F.M.A., S.E.S., F.A.G.F., C.G.S., M.G.Á., E.A.; Literature Search: A.F.M.A., S.E.S., F.A.G.F.; Writing: A.F.M.A., S.E.S., F.A.G.F.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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