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Blood, sweat, smears

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Description

A 21-year-old male with no prior medical history presented to the emergency department for epistaxis and bleeding ulcers in his mouth. In addition to small ulcers with dried blood in the oropharynx, physical exam also revealed a petechial rash and bruising on his extremities that the patient noted were new and atraumatic. His white blood cell count (WBC) was 24.2 K/UL, lactate dehydrogenase was 1,193 U/L, and uric acid was 7.6. mg/dL. A peripheral blood smear was obtained (Figures 1 and 2).

Acute promyelocytic leukemia (APL) is a medical emergency that results from a translocation which causes fusion of the promyelocytic leukemia gene with the retinoic acid receptor alpha gene. APL often presents with hemorrhage including epistaxis, gingival bleeding, ecchymosis, and menorrhagia. Patients are at risk of disseminated intravascular coagulation (DIC) and hyperfibrinolysis which can result in life-threatening bleeding [1]. Approximately 30% of patients diagnosed with APL die within 30 days of diagnosis [2].

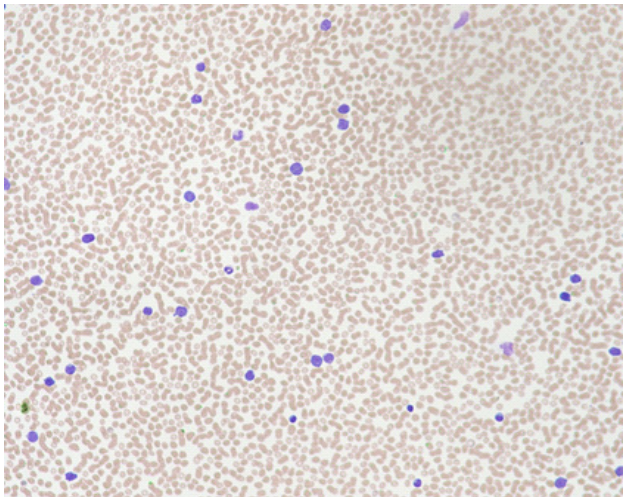

Figure 1: Peripheral smear 1.
Peripheral smear showed 65% blasts and 14% promyelocytes.

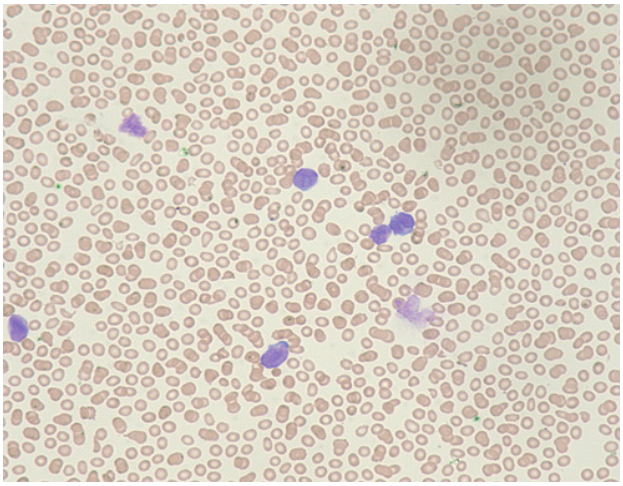

Figure 2: Peripheral smear 2.
Peripheral smear showed poikilocytosis with occasional schistocytes.

Emergent treatment with oral all-trans retinoic acid (ATRA) is recommended to stop cell differentiation and prevent death from hemorrhage, however about 35% of patients diagnosed never receive ATRA [3,4]. Patients with APL typically exhibit leukopenia. However, leukocytosis - as seen in this patient - is a poor prognostic marker. Patients with elevated WBC counts at diagnosis are at substantially increased risk of early mortality [2]. When a new diagnosis of APL is made in the emergency department, providers should consider emergent administration of ATRA in discussion with hematology and oncology.

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