

## Acute Promyelocytic Leukemia

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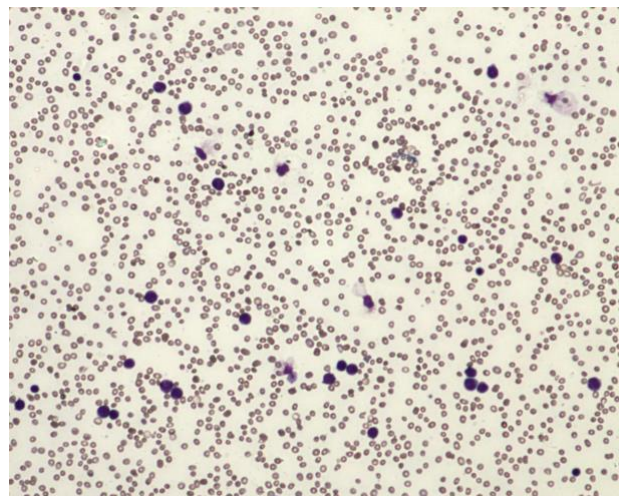
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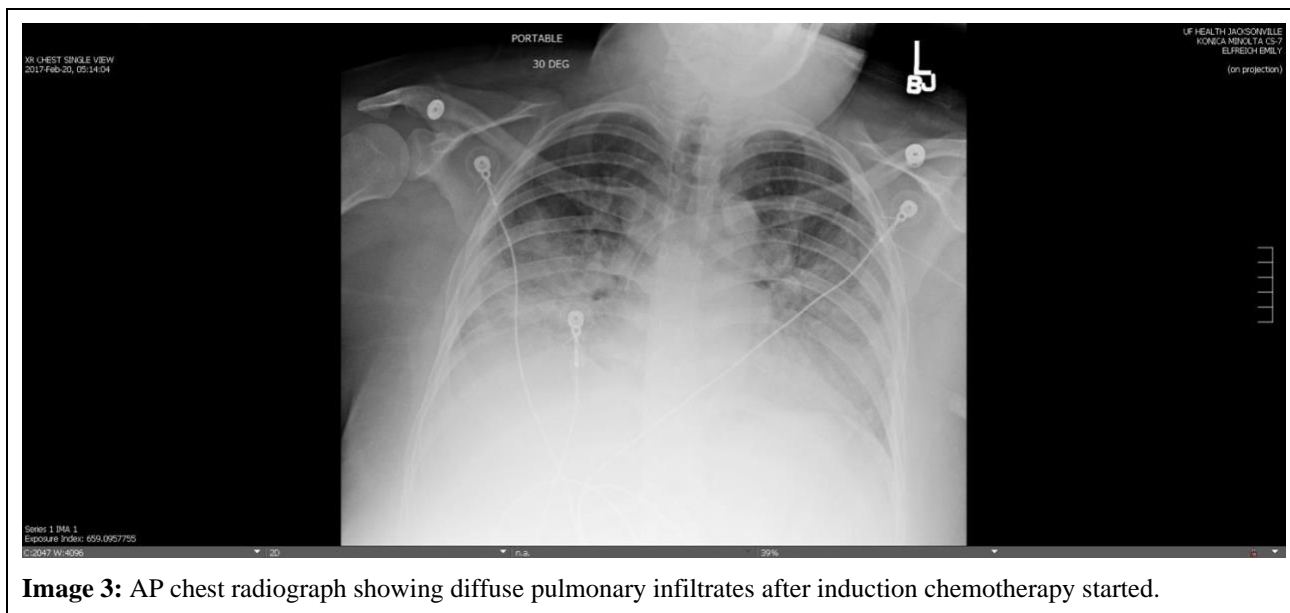
**Image 1:** Computed tomogram without contrast showing left temporal intraparenchymal hemorrhage with surrounding cytotoxic edema.



**Image 2a:** Peripheral blood 100x power Giemsa stain showing promyelocyte with granular cytoplasm and auer rods.



**Image 2b:** Peripheral blood 40x power Giemsa stain showing numerous promyelocytes.



**Image 3:** AP chest radiograph showing diffuse pulmonary infiltrates after induction chemotherapy started.

### Clinical Image

A 20 year-old woman complained of several weeks of dyspnea on exertion, bruising, fevers and new onset headache. She was found to have a WBC count of  $28 \times 10^3/\mu\text{L}$  with 73% blasts, hemoglobin of 5.2 g/dL, and platelets of  $5 \times 10^3/\mu\text{L}$ . Her INR was 1.7, Fibrinogen 87 mg/dL, and D-Dimer  $>20 \mu\text{g/mL}$  confirming DIC (disseminated intravascular coagulation). CT of her brain showed a left temporal intraparenchymal hemorrhage with cytotoxic edema (Image 1). Peripheral blood analysis showed promyelocytes with granular cytoplasm, auer rods and occasional bi-lobed nuclei (Images 2a-b).

FISH (fluorescent in-situ hybridization) analysis revealed a t(15;17) chromosomal translocation supporting the diagnosis of Acute Promyelocytic Leukemia: FAB (French American British system) M3 classification. Induction chemotherapy with ATRA (all trans-retinoic acid), Daunorubicin and Cytarabine was started. She developed worsening dyspnea and hypoxia with diffuse infiltrates on chest radiograph likely due to retinoic acid differentiation syndrome (Image 3); additional dexamethasone was given and she was supported with High Flow Nasal Oxygen therapy. She was discharged home in good condition on day 23 for consolidation chemotherapy.