



2025

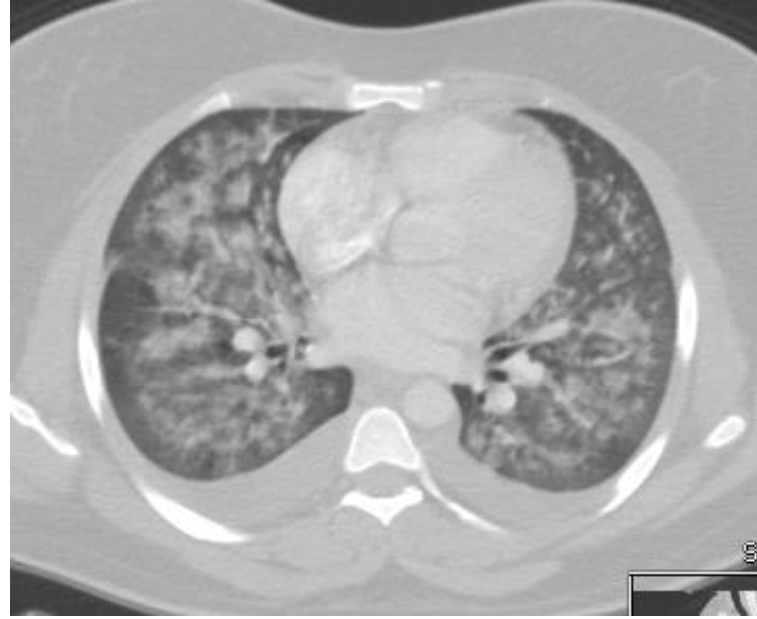
KARNATAKA RADIOLOGY EDUCATION PROGRAM

**Apollo Hospitals, Bengaluru**  
Contributor of the Series

## Case 11

Middle aged man on  
treatment for AML type 3,  
develops severe  
breathlessness in the second  
week of treatment with ATRA

Extensive lung  
infiltrates and  
trace pleural  
effusion



# ATRA SYNDROME

# ATRA SYNDROME OR RAS OR DS

- AML M3 (APL).
- Close to 25% pts develop this after 1 week of treatment initiation
- Mortality can be as high as 25% if not treated.
- 2-21 days after treatment (mean of 10 days).
- Increased cytokines level with capillary leak - Increased migration of leukemic cells due to maturation resulting in extensive organ infiltration - increased production of adherence ligands on the surface of leukemic myeloid cells - increased attachment of leukemic cells to endothelial cells- upregulation of production of intercellular adhesion molecule-1 - neutrophil attachment and activation.

# ATRA SYNDROME

- High count at start or rapidly increasing counts – prone.
- Respiratory distress and fever in >80% of patients.
- Unexplained fever, weight gain, elevated WBCs, respiratory distress, interstitial pulmonary infiltrates, pleural and pericardial effusion, dyspnea, episodic hypotension and acute renal failure.