

# **Pathology Student Interest Group**

**Sponsored by the  
College of American Pathologists**

**The Pivotal Role of the  
Pathologist:  
Hematopathology**

# Case Presentation



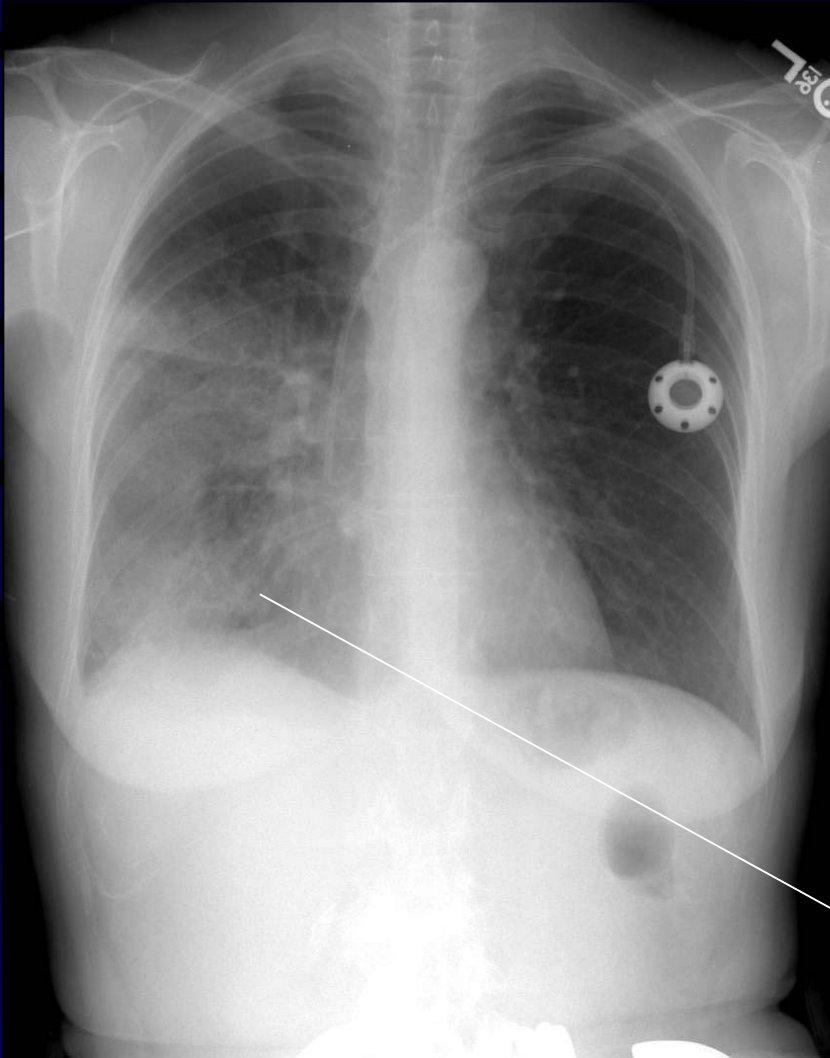
- **29 year old woman**
- **Cough**
- **Shortness of breath**
- **Fever**
- **Chills**
- **No prior illness**
- **No medications**

# Physical Exam



- **Dullness to percussion of RLL**
- **Decreased breath sounds**
- **Rales**

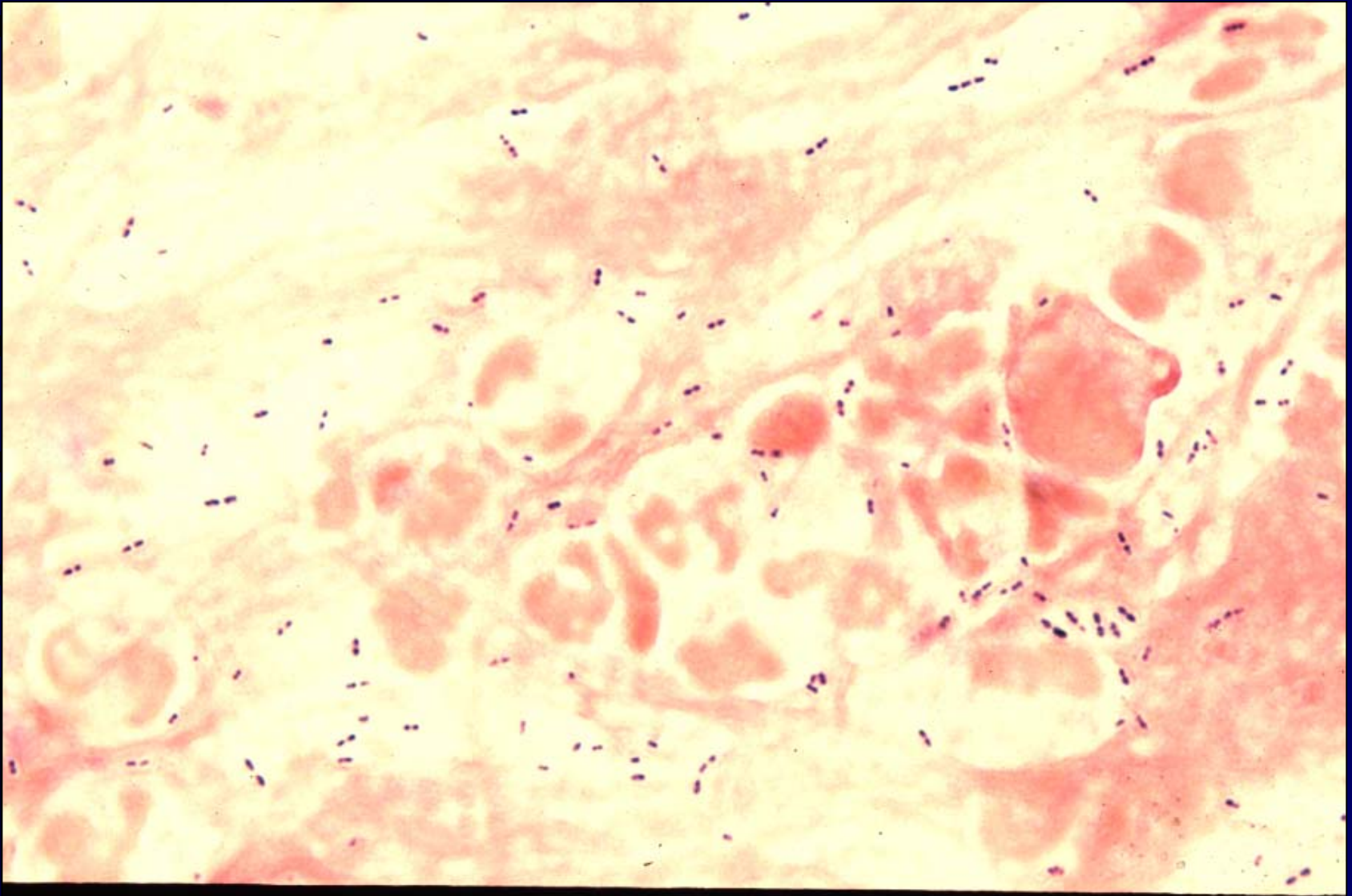
# Orders



- **Chest X-ray**
- **CBC**
- **Sputum Gram Stain and Culture**

**RML Density**



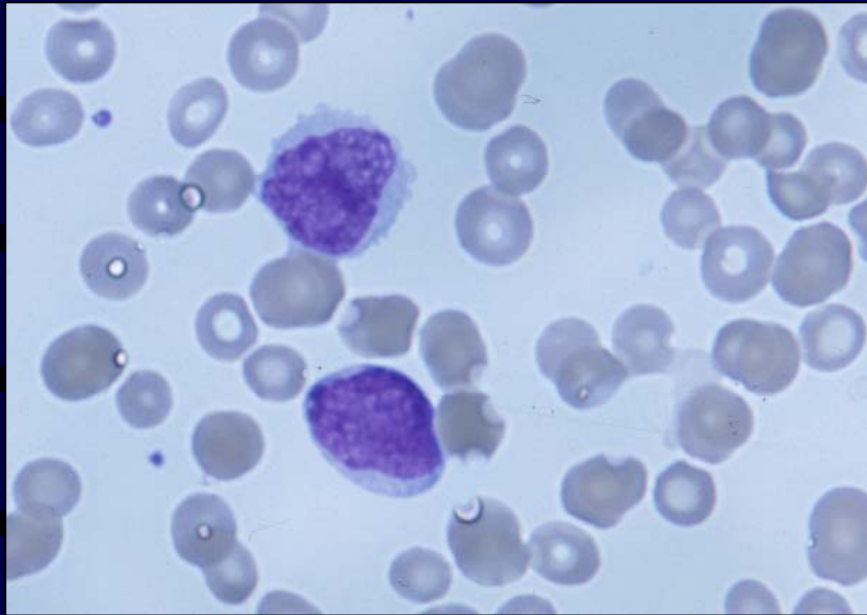


**Gram positive cocci in pairs**



**Dr. Path,  
the pathologist on call, is asked  
to review an abnormal peripheral smear**





**Peripheral smear  
with blasts**



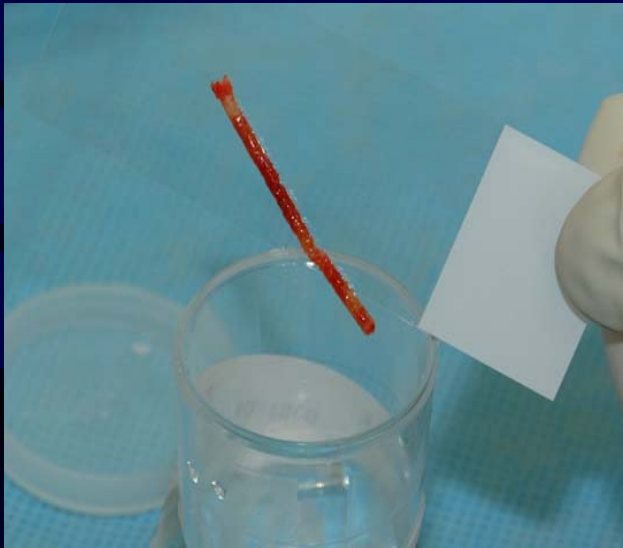
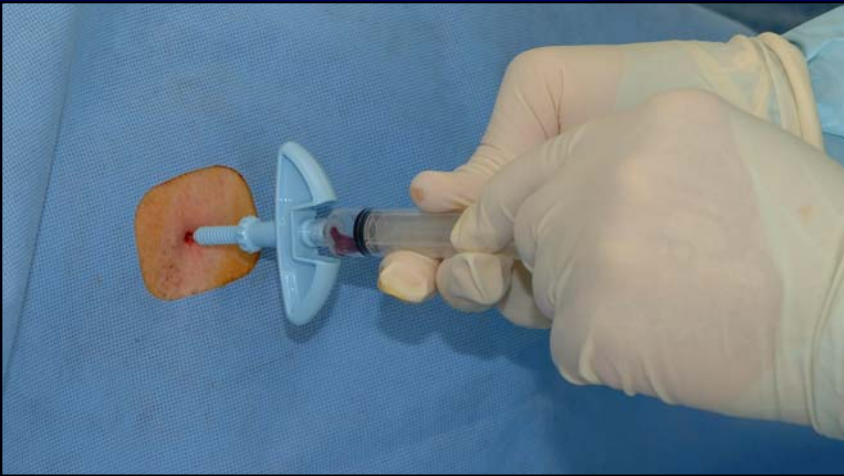


**Dr. Path  
recommends  
admission and a  
hematology/oncology  
consultation**



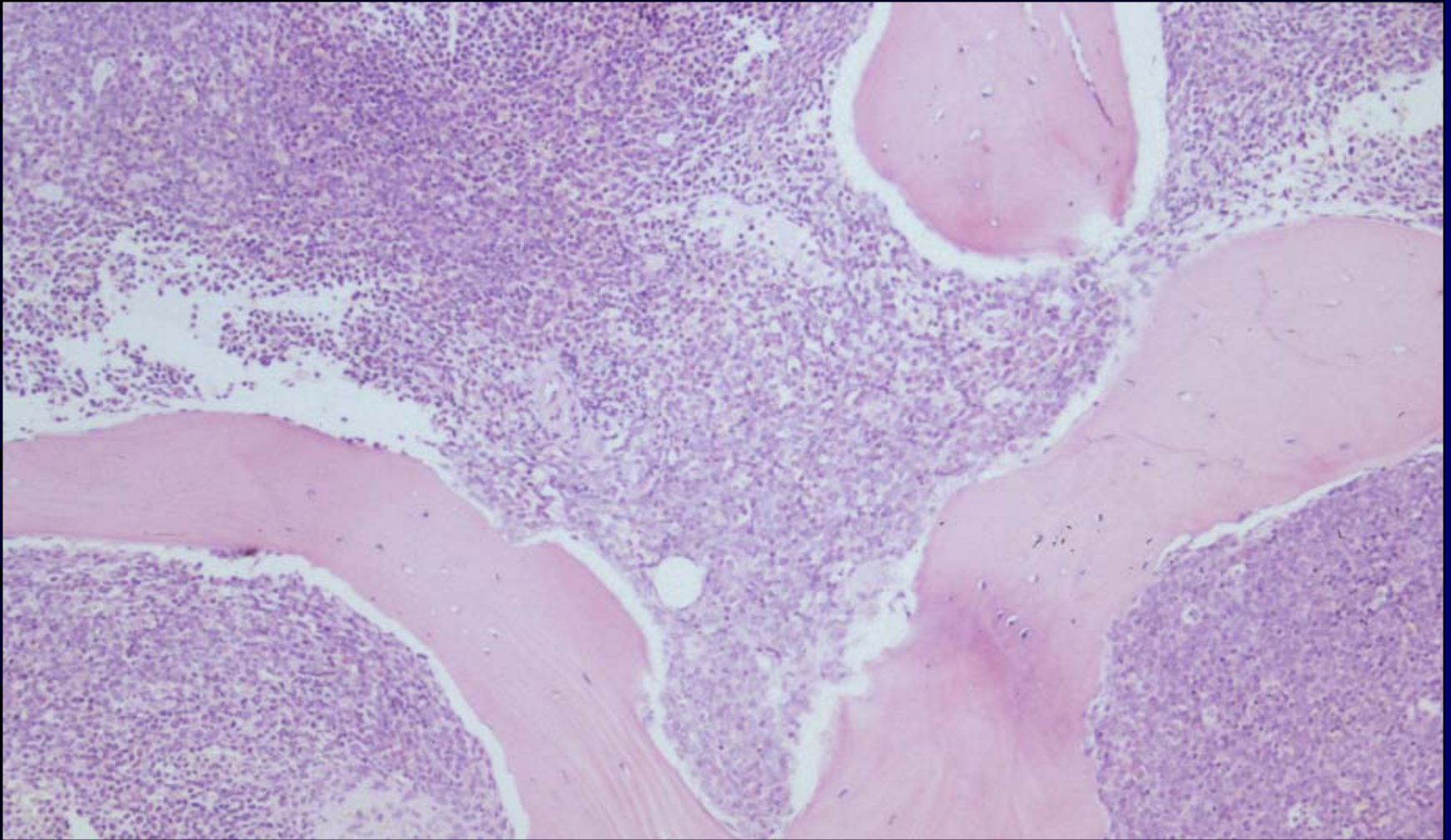
# Recommendations

- **Bone Marrow Biopsy**
- **Flow Cytometry**
- **Cytogenetics**
- **Appropriate Antibiotics**



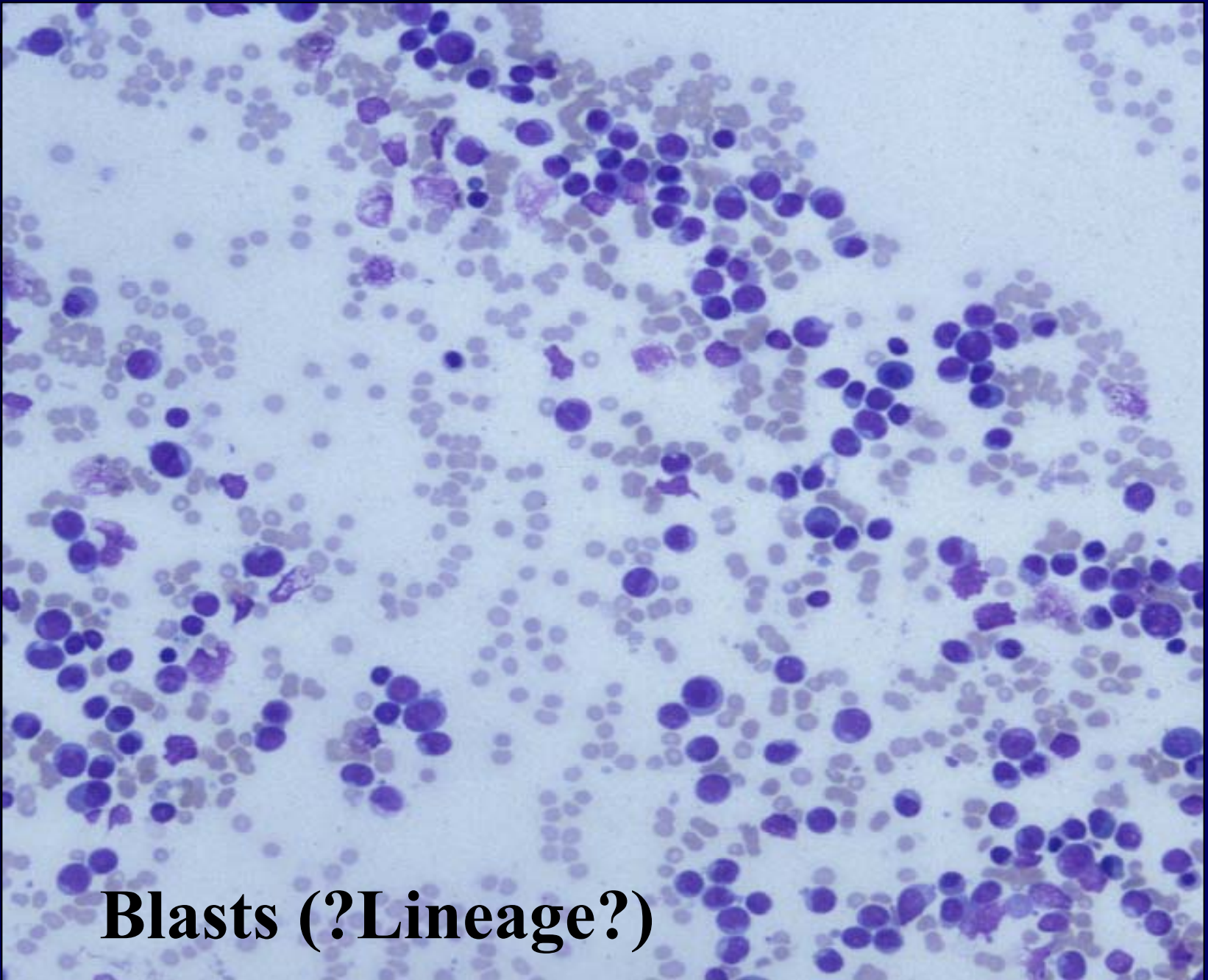
**Dr. Path performs  
Bone Marrow Aspirate And Biopsy**



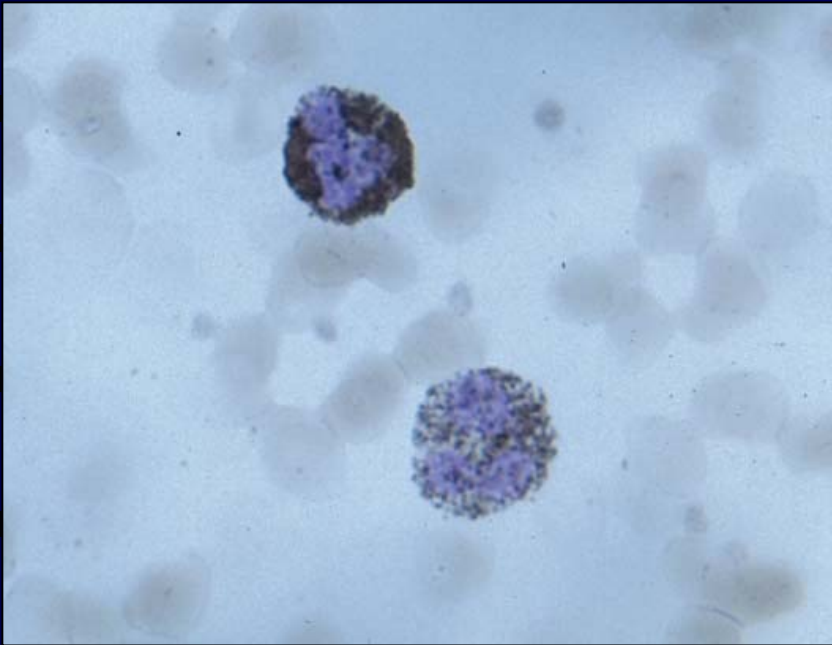


**Hypercellular Bone Marrow Biopsy**

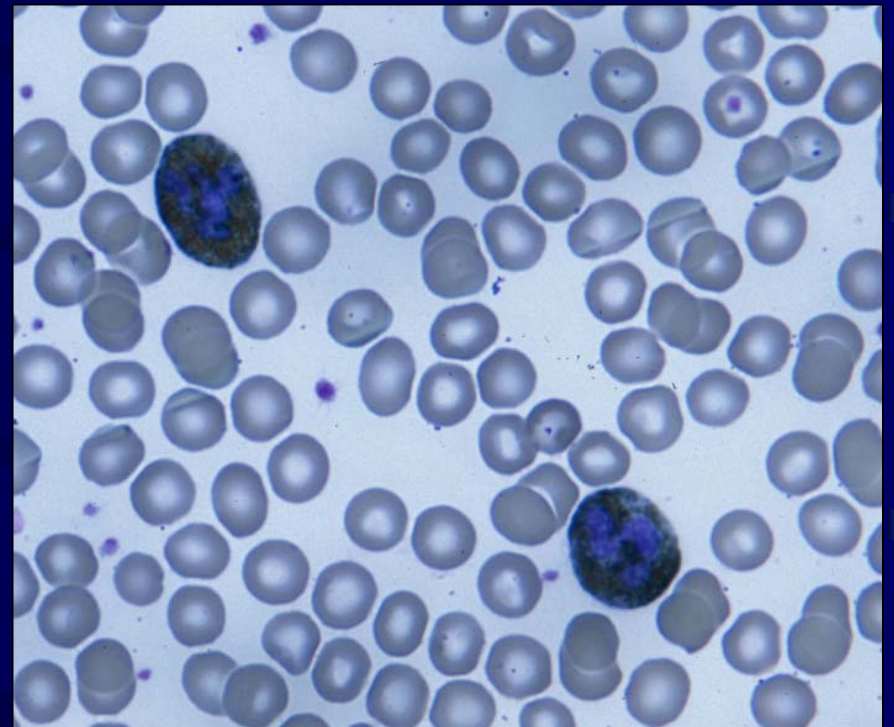




**Blasts (?Lineage?)**



**Sudan Black**



**Myeloperoxidase**

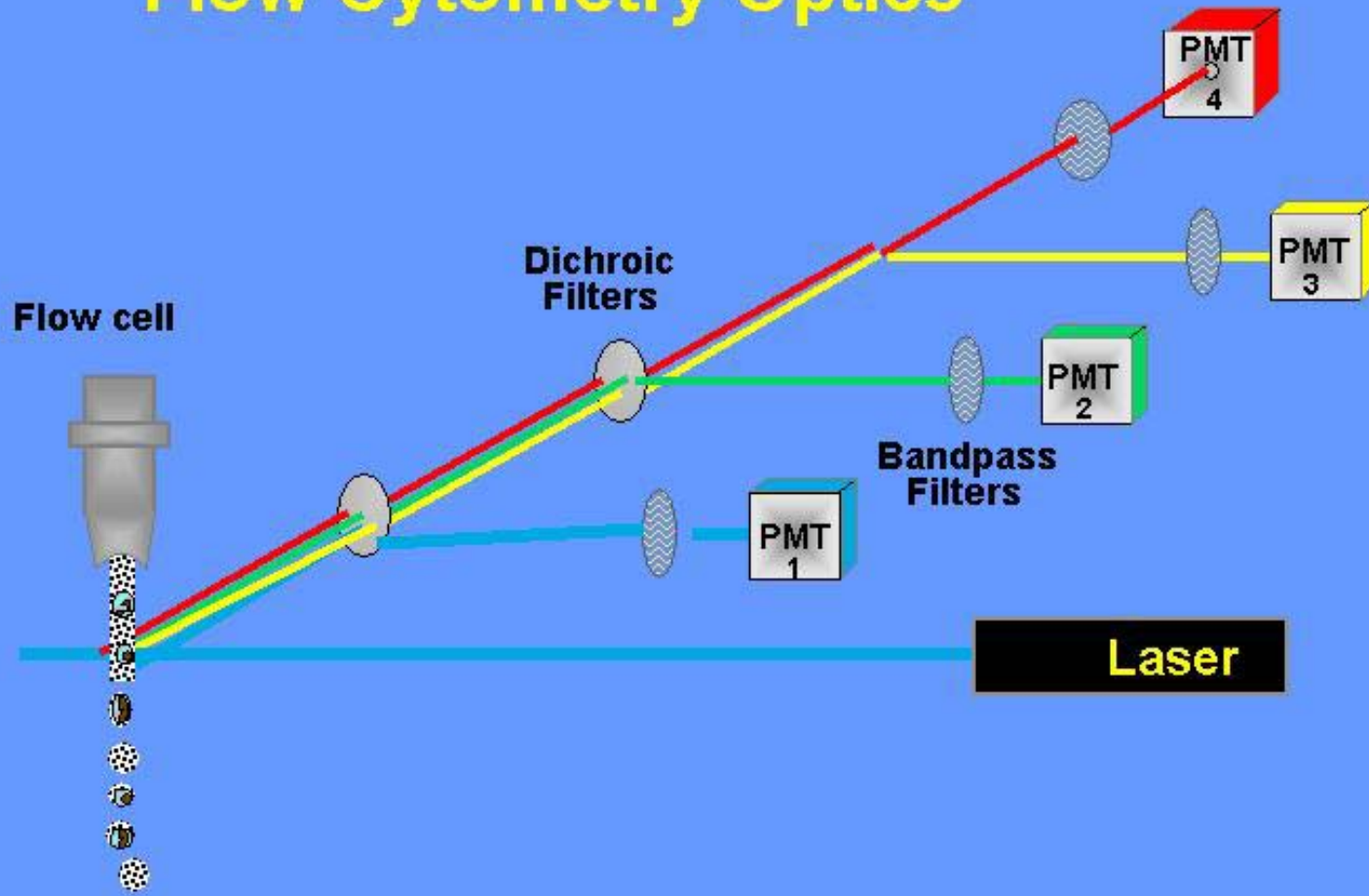




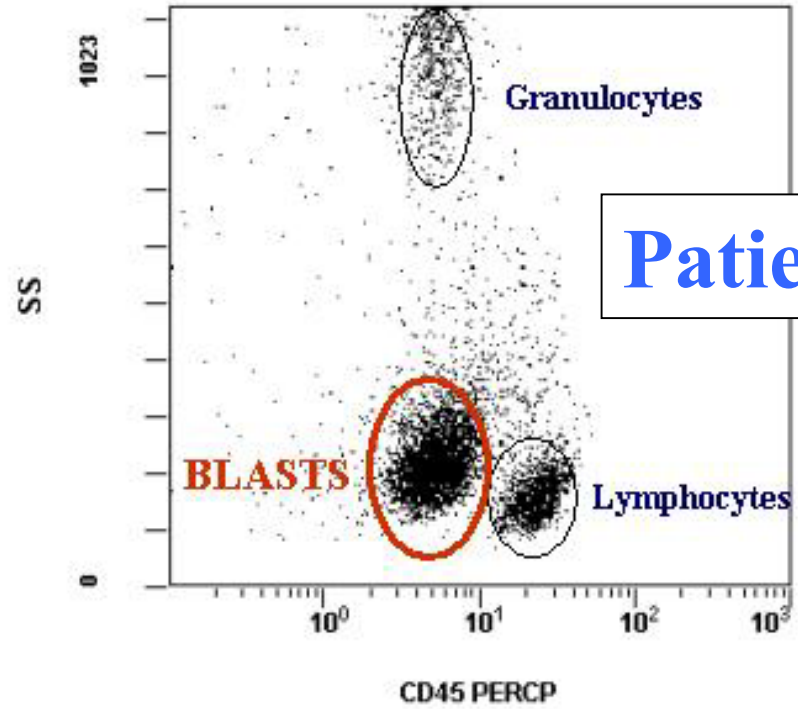
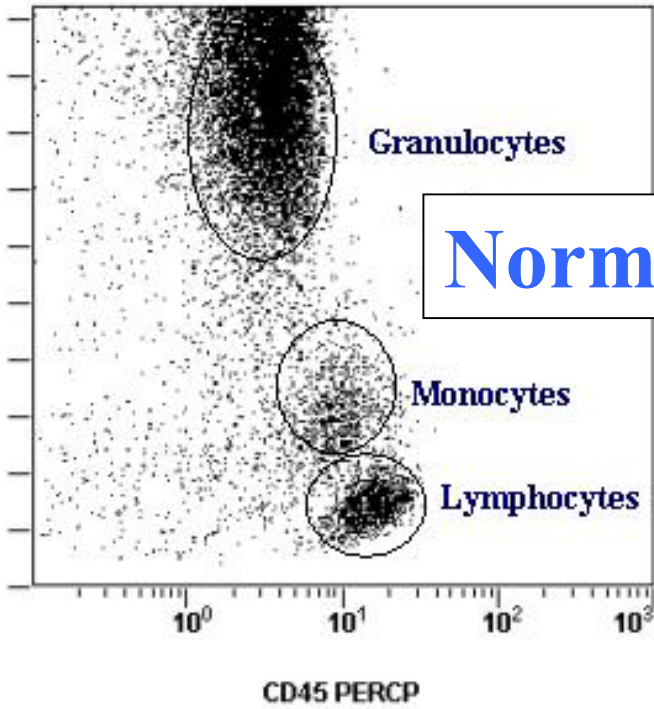
**Dr. Path selects appropriate markers  
for Flow Cytometry**

# Flow Cytometry

## Flow Cytometry Optics







# Flow Cytometry Results

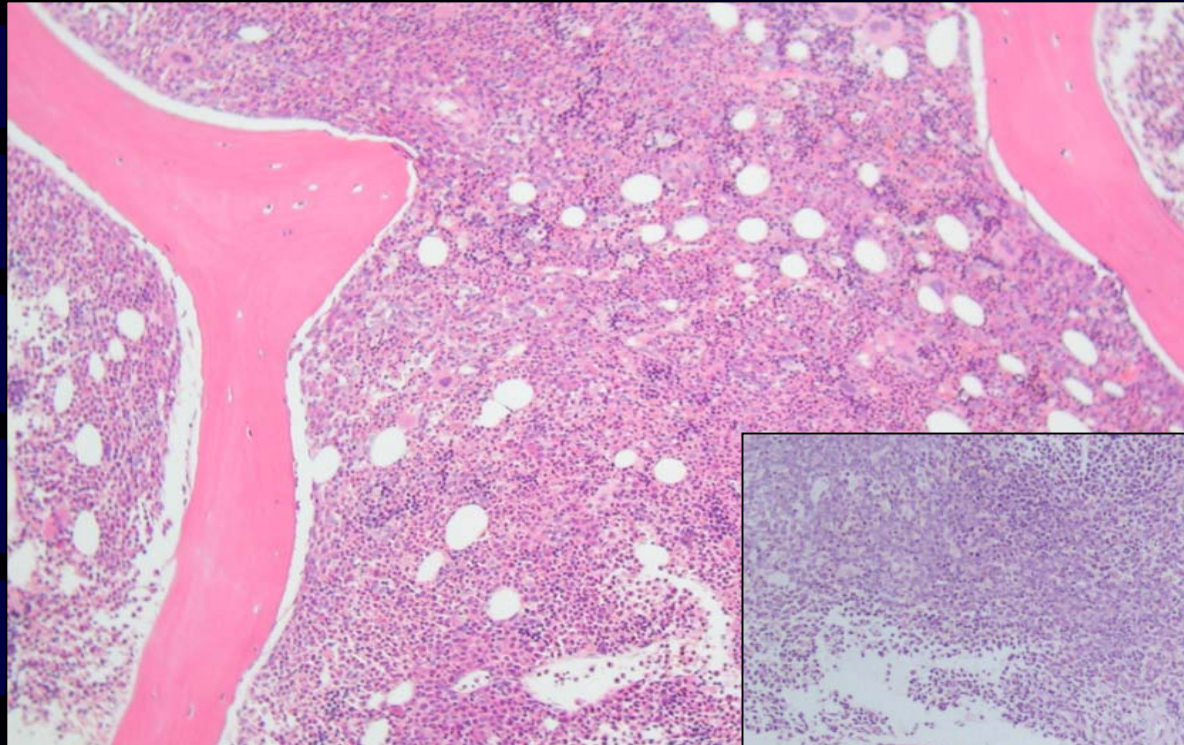




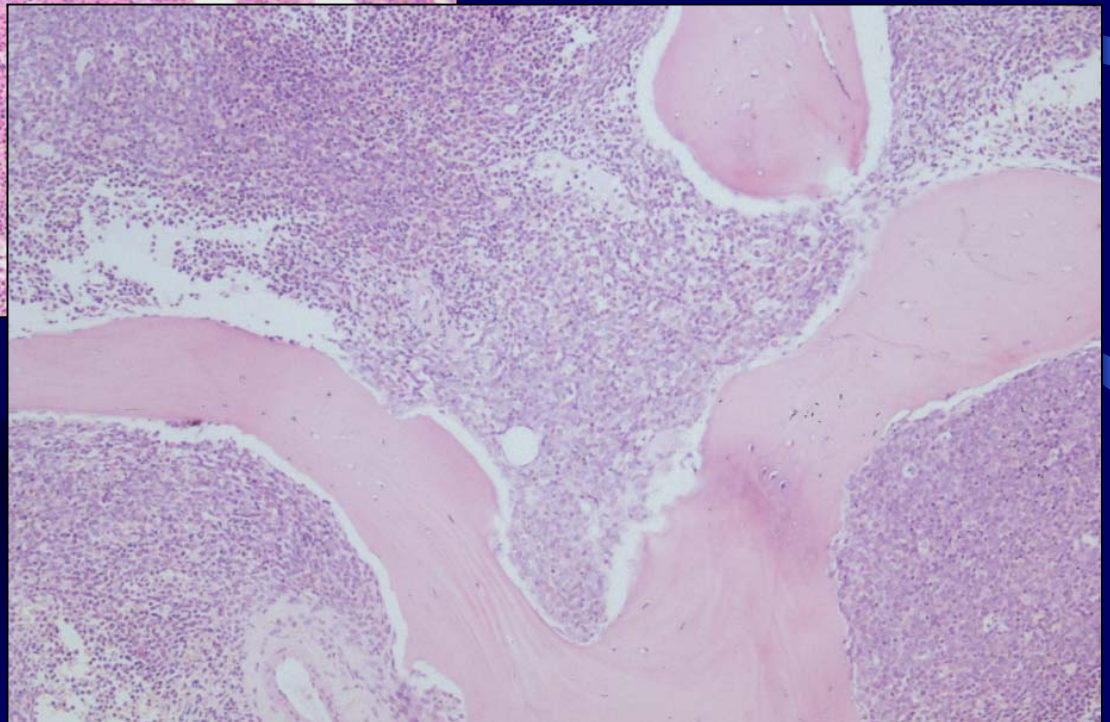
**Results reviewed with Clinical Team**



**Normal**



**Patient**



**Biopsy Results**

# Treatment with Chemotherapy



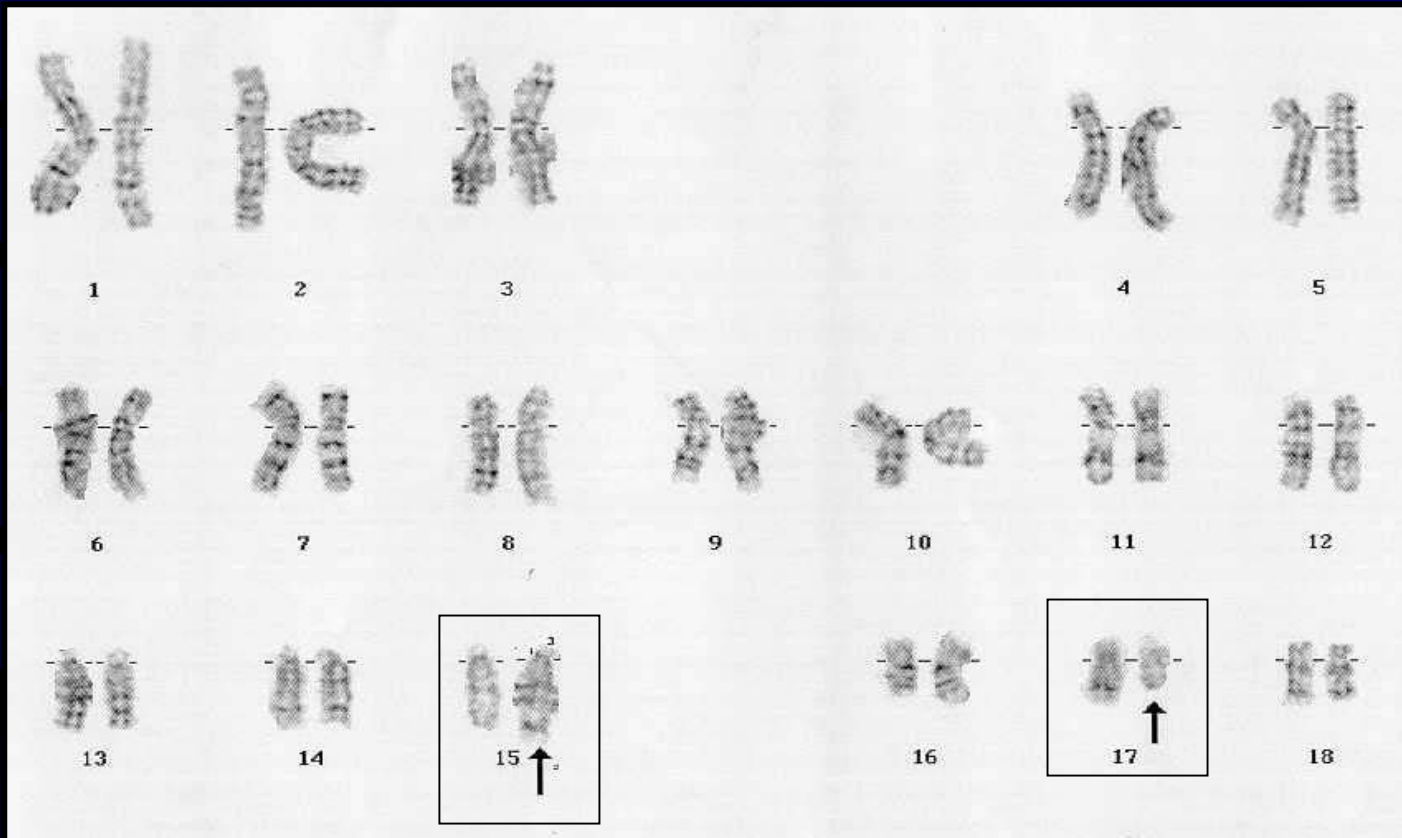
...Dr. Path encounters the patient again when she requires red blood cells and platelets





**Where are  
the cytogenetic  
results?**

# Acute Promyelocytic Leukemia (M3)



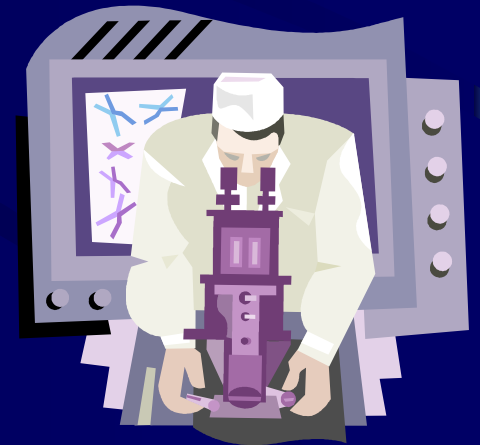
**t(15;17)**

**Cytogenetics suggest a favorable prognosis**

# **Role of Pathologist in Acute Leukemia**

- **Peripheral Blood Smear**
- **Bone Marrow**
- **Flow Cytometry**
- **Cytogenetics**
- **Adjunctive Studies**
- **Follow-up Studies**

**Right Now, a Pathologist is  
Practicing Medicine and  
Making a Difference in  
Directing Patient Care**





# Pathology in Medical School

Medical Students do NOT  
formally rotate through the  
Pathology Service unless they  
choose to do an Elective!



# Opportunities

- **Review your Patient's Pathology with a Pathologist or Resident**
- **Shadow a Pathologist or Resident**
- **Take an Elective Rotation**
- **Attend Various  
Clinicopathological  
Conferences**

