

# Nuances in Malignant Hematology

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# Disclosures

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Abbvie, AstraZeneca, Beigene, Teva Pharmaceuticals

## Objectives

Review the CBC + differential and how it can help crack the case

Classic cases in malignant hematology from diagnosis to primary care intervention

How to help your malignant hematologist

The CBC,  
differential, and  
selected cases

It ain't a CBC  
without a  
differential

U N N A M E D H E M A T O L O G I S T

# Basic CBC

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WBC 4.3-11.0 x10<sup>3</sup>/uL

ANC Calc >1.8 K/uL

HGB 13.3-17.7 g/dL

MCV 81.0-99.8 fL

PLT 140-400 x10<sup>3</sup>/uL

NEUT% 40.0-74.0

LYMPH% 19.0-48.0

MONO% 1.0-9.0

EOS% 0.0-7.0

BASO% 0.0-1.5

# Case 1

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56F presents w/ CC of fatigue and LUQ pain radiating to the shoulder.

ROS: Early satiety, 15 lb weight loss

PE: Spleen palpable 6 cm costal margin

# Case 1

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WBC 88 4.3-11.0 x10<sup>3</sup>/uL

HGB 9.7 13.3-17.7 g/dL

MCV 85 81.0-99.8 fL

PLT 510 140-400 x10<sup>3</sup>/

# Case 1

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NEUT ABS	61.6	1.8-8.0 x10 <sup>3</sup> u/l
IG	9.0	0.0-1.0 x10 <sup>9</sup> /L
LYMPH	10.0	1.00-5.20 x10 <sup>3</sup> u/l
MONO	1.2	0.20-1.00 x10 <sup>3</sup> u/l
EOS	1.2	0.00-0.45 x10 <sup>3</sup> u/l
BASO	5.0	0.00-0.20 x10 <sup>3</sup> u/l

Smear: increased myelocytes over metamyelocytes



# CML

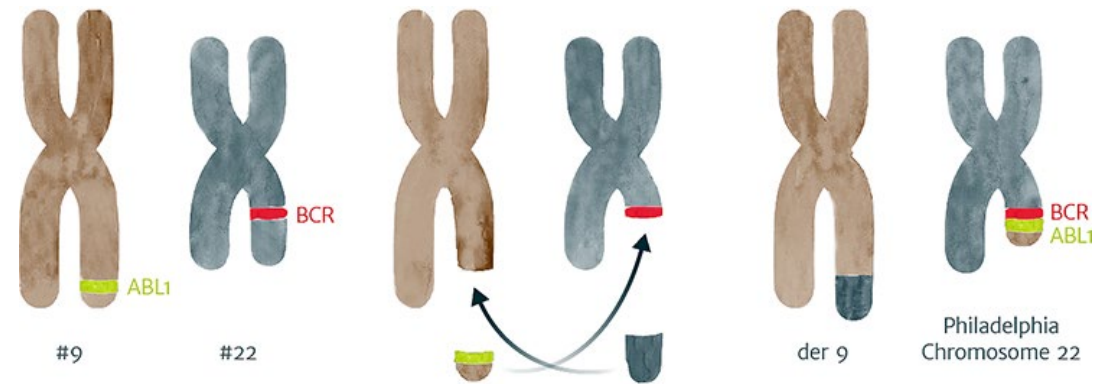
Chronic Myeloid Leukemia

Myeloproliferative neoplasm family

BCR::ABL1 fusion gene t(9:22) – Philadelphia chromosome

Chronic, accelerated, and blast phases – bone marrow needed

Median age dx: 50



<https://cmlsupport.org.uk/section/about-philadelphia-chromosome>

# CML

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Not typically curable but highly treatable with pill therapies

Transplants are rare

Goal is to drive into molecular remission in 1 year

People who stay in molecular remission for 2-3 years may come off therapy



Drugs.com



# CML Pearls for PCP

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Watch the D2D interactions:

- PPIs/H2s
- SSRIs/bupropion
- Calcium channel blockers
- Systemic antifungals

# Case 2

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72M presents for Medicare wellness exam.

ROS: mild fatigue, 2 sinus infections + 1 pneumonia past year, possible area of swelling in groin. Stable weight. No night sweats

PE: 1 cm left anterior cervical + 1.5 cm right inguinal LAD, palpable spleen tip

# Case 2

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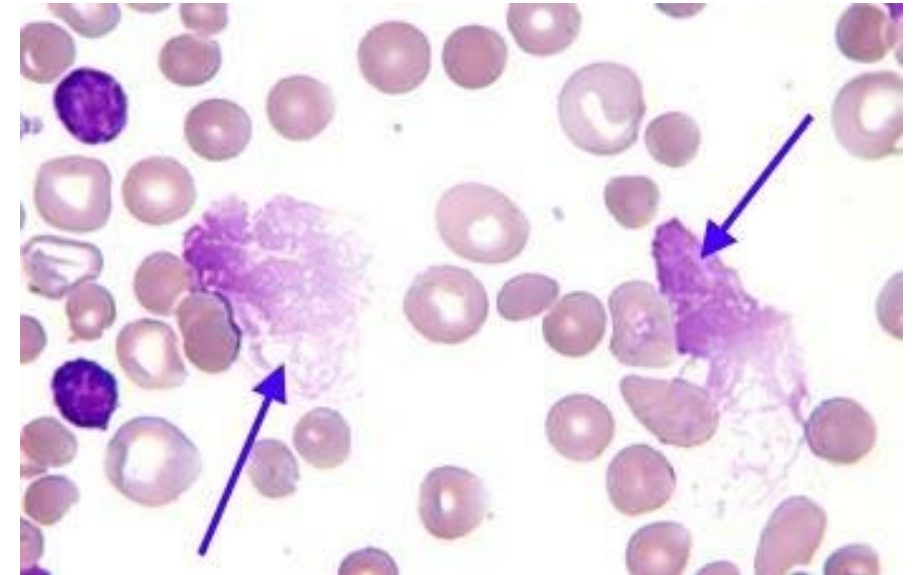
WBC	32	4.3-11.0 x10 <sup>3</sup> /uL
ANC Calc	3.54	>1.8 K/uL
HGB	13.1	13.3-17.7 g/dL
PLT	225	140-400 x10 <sup>3</sup> /uL

# Case 2

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NEUT ABS	3.54	1.8-8.0 x10 <sup>3</sup> u/l
IG	0.0	0.0-1.0 x10 <sup>9</sup> /L
LYMPH	28.16	1.00-5.20 x10 <sup>3</sup> u/l
MONO	0.2	0.20-1.00 x10 <sup>3</sup> u/l
EOS	0.1	0.00-0.45 x10 <sup>3</sup> u/l
BASO	0.1	0.00-0.20 x10 <sup>3</sup> u/l

Smear: smudge cells



<https://www.medical-labs.net/smudge-cells-1134/>

# CLL

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Chronic lymphocytic leukemia

Mature B-cell neoplasm

If presents primarily in lymph nodes – small lymphocytic lymphoma

More common in white men

Median age dx: 70

Diagnosed by flow cytometry – no bone marrow!

# CLL

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## Not considered curable

- Not all patients need treatment!
- Targeted treatment, no chemotherapy

## CBC and symptoms drive indication for treatment

- Hgb <10.0, plt < 100, neutropenia
- Rapidly rising ALC
- Night sweats, progressive fatigue, weight loss
- WBC alone is not indication for treatment

## Can present with autoimmune cytopenias

- AIHA, ITP, PRCA



# CLL Pearls for PCP

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Increased rates of 2<sup>nd</sup> malignancy

- Guideline based, age-appropriate cancer screening
- Annual whole-body skin eval with Dermatology

Increased risk of infection

- Annual influenza and RSV
- Lifetime Shingrix
- COVID-19 boosters
- Pneumococcal every 5 years
- Recurrent infections.... may need IVIG



# CLL Pearls for PCP

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Patients on BTKi:

- Ibrutinib, acalabrutinib, zanubrutinib, pirtabrutinib

Cumulative risk of AF, HTN

Increased risk of bleeding – platelet dysfunction?

- Need to hold 3-7 days before surgery
- Not a contraindication for anticoagulation

Watch the D2D interactions

Higher risk of common and uncommon infections

# Case 3

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66F presents w/ CC increased bruising and “tiny red spots” on the legs

PMH: breast ca treated with chemotherapy and radiation 4 years ago

PE: pallor, ecchymosis on forearms, petechiae on shins

## Case 3

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WBC	3.6	4.3-11.0 x10 <sup>3</sup> /uL
ANC	1.8	>1.8 K/uL
HGB	9.7	13.3-17.7 g/dL
MCV	114	81.0-99.8 fL
PLT	28	140-400 x10 <sup>3</sup> /uL

Unremarkable differential

Smear: no platelet clumping, dysplastic neutrophils, 2% blasts

# MDS

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Myelodysplastic syndromes

Heterogenous group of diseases

- Single line vs multilineage
- Specific mutations
- Blast percentage on bone marrow

Increased risk from chemotherapy/XRT exposure

Spectrum of illness with AML

Median age dx 70

# MDS

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Treatment varies

Low-intermediate-high risk

Molecular –International Prognostic Scoring System

- Estimated survival and risk of transformation to AML

Not all need treatment

- Dependent upon counts, blasts, and likelihood to transform

Transplant is only curative option

# MDS Pearls for PCP

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Other conditions can present with dysplasia

Must exclude:

- nutritional deficiency
  - B12, folate, copper
- Significant alcohol intake
- HIV

Consider in your middle and older age patient with macrocytosis and cytopenias

Chemotherapy exposure in past 2-7 years

# Case 4

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62F presents w/ CC recurrent sinus infections and fatigue

ROS: gingival bleeding, multiple bruises, odd rash

PE: pallor, ecchymosis on the abdomen, petechiae on legs, raised scaly plaque on the left arm



# Case 4

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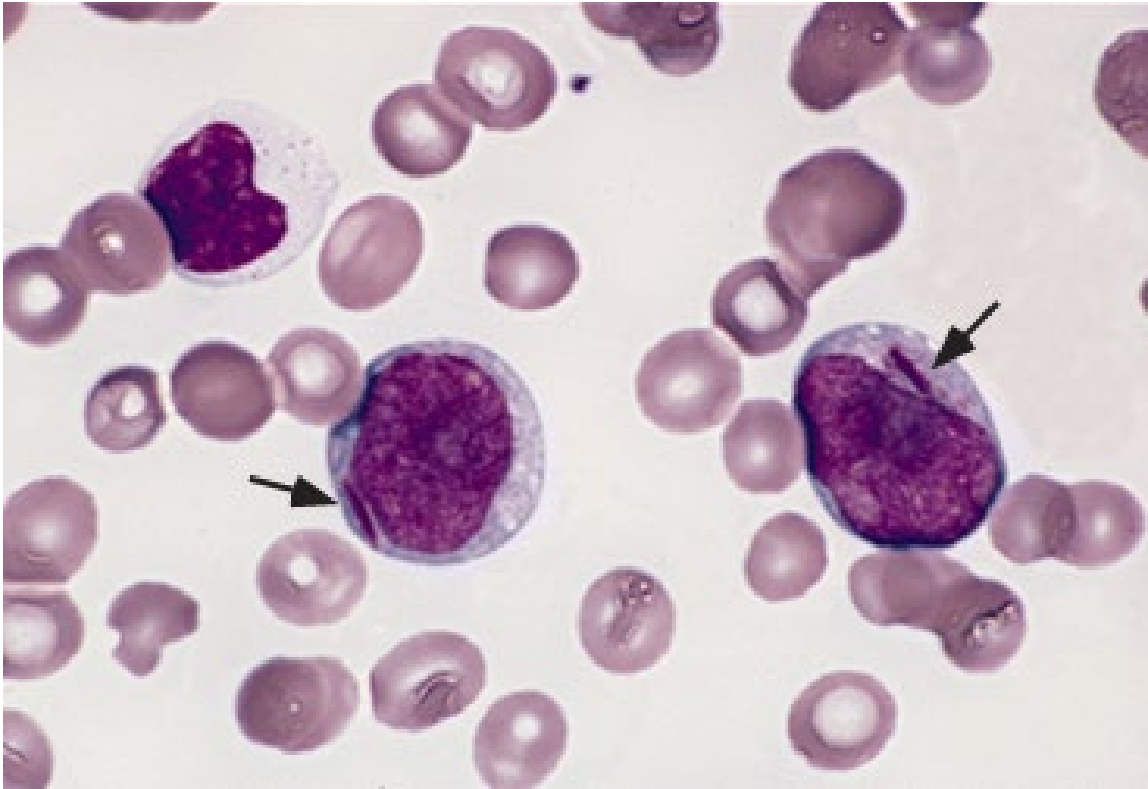
WBC	87	4.3-11.0 x10 <sup>3</sup> /uL
ANC Calc	8.5	>1.8 K/uL
HGB	6.8	13.3-17.7 g/dL
PLT	17	140-400 x10 <sup>3</sup> /uL

# Case 4

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NEUT ABS	8.5	1.8-8.0 x10 <sup>3</sup> u/l
LYMPH	4.5	1.00-5.20 x10 <sup>3</sup> u/l
MONO	73.5	0.20-1.00 x10 <sup>3</sup> u/l
EOS	0.3	0.00-0.45 x10 <sup>3</sup> u/l
BASO	0.3	0.00-0.20 x10 <sup>3</sup> u/l

Smear: blasts w/ Auer rods



# AML

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Acute myeloid leukemia

Aggressive leukemia requiring urgent treatment

May be de novo or from antecedent MDS/MPN

May be related to prior chemotherapy

Beware of DIC at presentation – APL?

Hyperleukocytosis and leukostasis

Median age dx 65

# AML

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Outcomes are driven by mutations/chromosomes and prior therapy exposure

- Favorable – intermediate – adverse

Fit or unfit for intensive chemotherapy (age, PS, comorbidities)

Chemotherapy cures some

Transplant mandatory for others

Good palliative options for the elderly

# AML Pearls for PCP

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None....

I become their PCP

# AML Pearls for PCP

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Novel agents (IDH/FLT3 inhibitors) with novel side effects

- Evasidenib, ivosidenib, midostaurin, gilteritinib

Differentiation syndrome

- Dyspnea, fever, edema, hypotension, weight gain, renal failure, musculoskeletal pain, and hyperbilirubinemia
- Pulmonary infiltrates/effusions
- Leukocytosis

Appears in 1<sup>st</sup> month of treatment

Responds to steroids

# AML Pearls for PCP

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Patients may be on palliative treatment for several years

- Routine primary care

Post-transplant

- Routine primary care
- Radiation recipients heightened risk of skin cancer
- Premature menopause
- Osteoporosis in both sexes
- cGVHD
  - Inflammatory/sclerosing disorder impacting any organ

How to help  
your malignant  
hematologist!

It takes a  
village to  
treat blood  
cancers.

U N N A M E D H E M A T O L O G I S T



# Lymphomas

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Tissue is the issue

- No to FNA, core OK, excisional is best

Aggressive vs indolent

- Aggressive: curable, treatment mandatory
- Indolent: not-curable, may watch and wait
  - Risk of transformation to aggressive disease: be aware of B symptoms

# Infections

## Underlying malignancy matters

- Hematologic malignancy often associated with baseline immune defect = higher risk of infectious complication
- Multiple myeloma/CLL = lack of humoral immunity -> higher risk encapsulated organisms (Strepto pneumoniae, Haemophilus, and Neisseria)
- AML = prolonged neutropenia -> higher risk of invasive fungal
- ALL = CD4 depletion -> consider PJP

## PE and imaging may be underwhelming

- No neutrophils or suppressed cytokine production = no inflammation



# Supportive care in cancer

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**Depression and anxiety  
are common**

Screen and treat  
Watch D2D interactions



**Encourage physical  
activity and  
aggressively manage  
comorbidities**

PS and comorbidity control  
impact my offerings



**Low threshold for pain  
mgmt. or palliative  
care referral**



# Transfusion support

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Who needs irradiated blood?

- Goal is to prevent ta-GVHD

CAR-T and stem cell transplant recipients

Recipients of purine analogues: fludarabine, cladribine, bendamustine, clofarabine

Recipients of ATG or alemtuzumab

Hodgkin lymphoma

Donations from biologic relatives

Questions?

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