MAYO CLINIC

Hiding in Plain Sight

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- I have nothing to disclose.

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OBJECTIVES

- Review diagnosis and management pearls applicable to rheumatic conditions.
- Identify rheumatic and non-rheumatic processes that can cause high markers of inflammation.
- Recall constitutional symptoms from malignancy in rheumatology.
- Consider advanced imaging to diagnosis of rheumatic symptoms.

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Clinical case

46 yo M presented for flu-like symptoms
- No response levofloxacin
- Sick contacts: both daughters with similar symptoms prior

- Hospitalized: Could not walk secondary to leg pain
  - Anemia, leukopenia, thrombocytopenia
  - High ESR and CRP
  - Negative ANA
  - CTA negative for PE, but bilateral small pleural effusions
  - Infectious workup negative (flu, Legionella and pneumococcus, EBV IgM, blood cultures, hepatitis)
  - Transaminitis. Normal CK.
  - IV abx
  - Prednisone 20 mg daily → resolution of symptoms

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Clinical case

- Symptoms relapsed 2 days after stopping prednisone
- Outpatient rheumatology
  - Slightly elevated RF, otherwise neg rheum serologies
  - ESR 70
  - Negative physical exam
- That same evening: severe right upper quadrant abdominal pain → Emergency Department → hospitalized

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Clinical case

- Relapse of all symptoms - PLUS
- Admitting physician: muscle weakness right hip flexor, a “malar rash,” livedo and **severe** R>L thigh pain
- Cytopenia and transaminitis
- SPEP WNL
- ESR and CRP >100
- CT abdomen/pelvis negative
- CT angiogram chest/abdomen/pelvis negative: only small bilateral pleural effusions
- MRCP negative

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Clinical case

- Hospital consultations:
  - ID: “not infectious”
  - GI: negative workup
  - Hematology: no findings for cancer
  - Prednisone 20 mg BID: symptoms resolved
    - Discharged to see rheum as outpatient

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Past Medical History and Medications:

- Hypertension, hyperlipidemia and nonalcoholic steatohepatitis

Habits:

- Former smoker: 10 pack years
- Alcohol: none

Social History: Elementary school principal

Family History: Cousin with lupus

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Referral to Rheumatology for “UCTD”

- PE:
  - Face with macular telangiectatic erythema
  - No synovitis
  - No weakness
  - Mild livedo over thighs and knees
- Fatigue, mild dry cough, mild intermittent dyspnea
- Taking prednisone 40 mg daily

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What are you thinking as the consulting Rheumatologist?

Any additional history desired?

What diagnoses should be considered?

What are your suggested next treatment and/or diagnostic steps?

Labs:

- Hgb 10.8 with MCV 90.9
- Plt 116
- WBC 6.2
- Cr 1.0
- ALT 192; AST 55; Alk phos 288
- T. protein 6.6
- TSH 1.0
- CK 47; aldolase 9.9 (<7.7)
- ESR 51; CRP 13.8 (<8.0)

- ANA 0.6; ENA negative; C3/C4 WNL
- RF and CCP negative
- Anti-MPO and anti-PR3 neg
- APS panel negative
- Cryoglobulins negative
- SPEP without monoclonal gammopathy
- MyoMarker panel negative

Any additional testing?

EMG

- Negative for myopathy or large fiber neuropathy

Imaging: Echo

- Preserved EF
- No pericardial effusion
- No significant valvular disease

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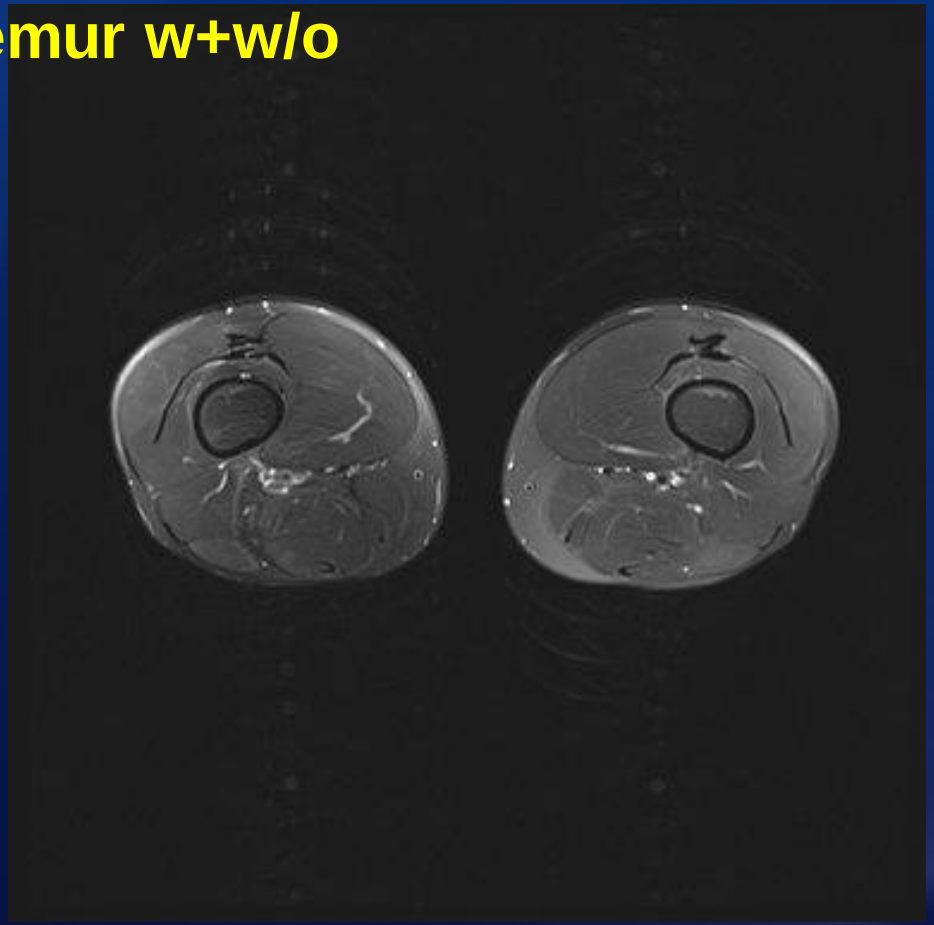
MR right femur w+w/o



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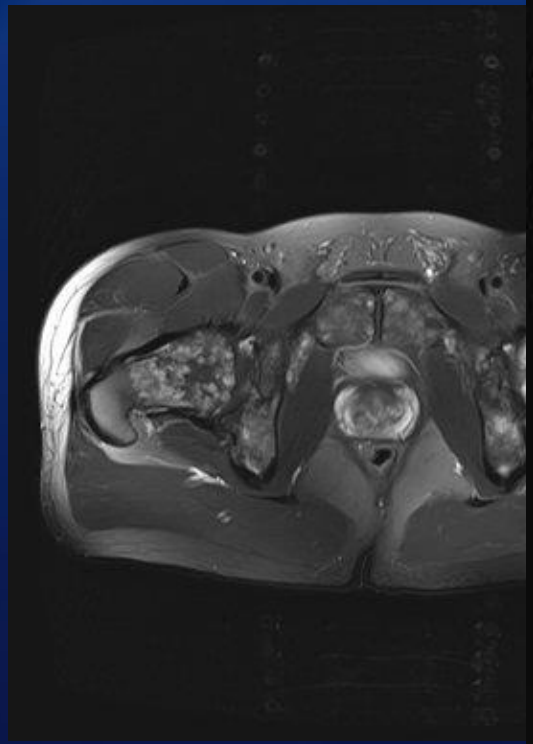

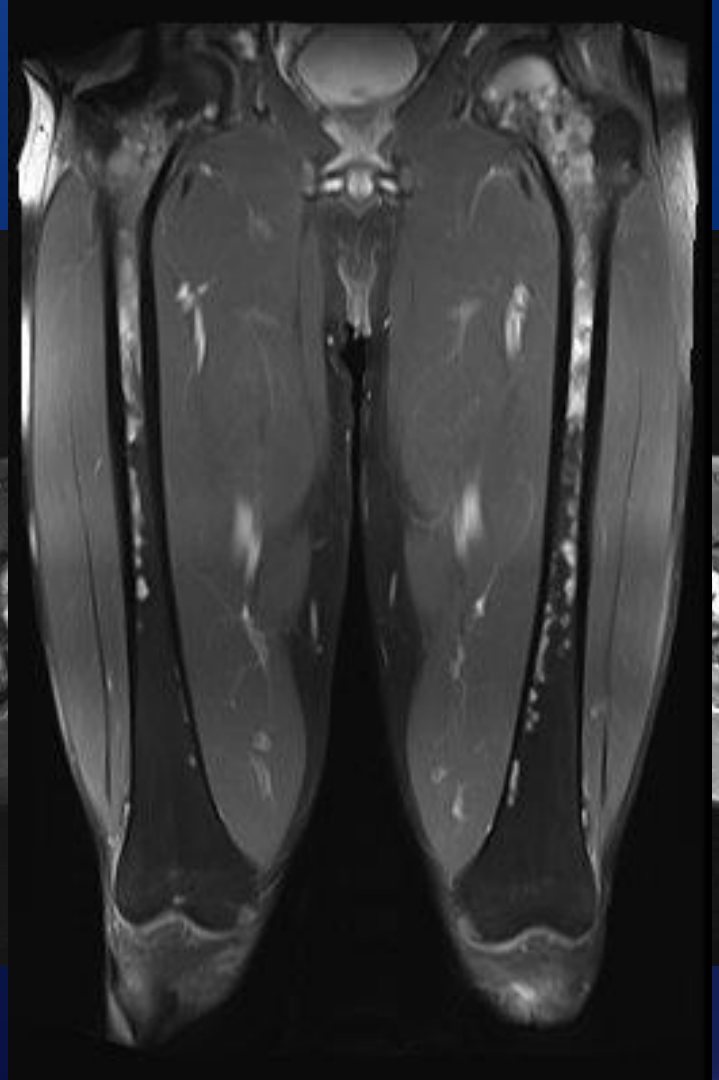

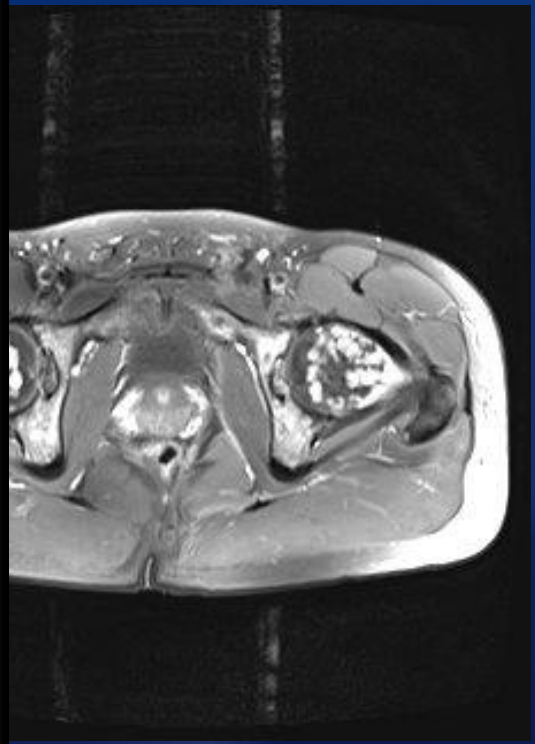

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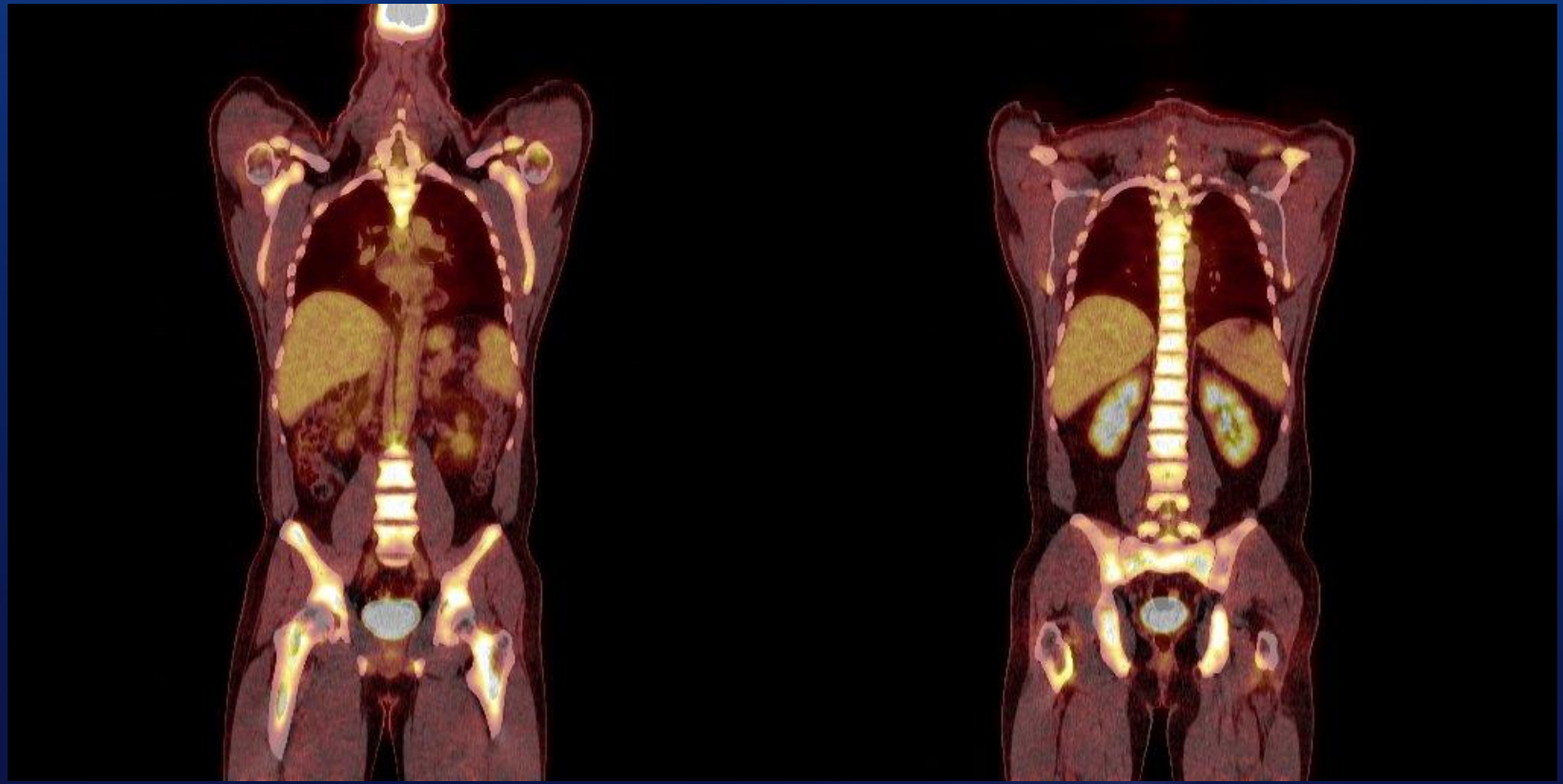
NM PET/CT



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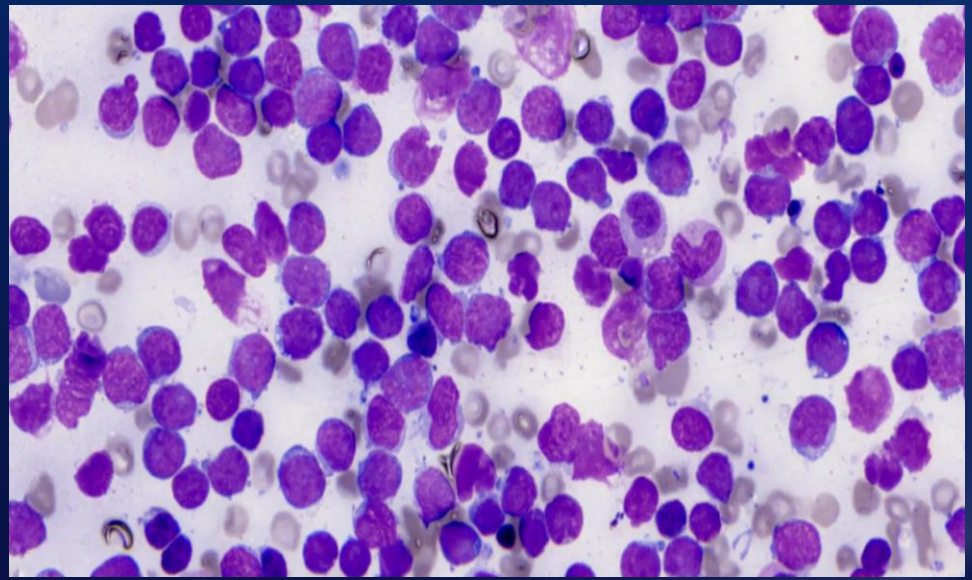
- A diagnostic test was performed
- Bone marrow biopsy



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Final diagnosis and conclusion

- B cell acute lymphoblastic leukemia
  - Philadelphia chromosome (Ph) negative
- Achieved remission with RTX + chemo and allogeneic stem cell transplant
- Remains in remission 7 years later

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Take Home Points: ALL

- Diagnosis: >20% blasts on peripheral smear or bone marrow bx
- Common mutations:
  - t(12;21) and t(9;22)
- B or T cell (> 2/3 are B cell)
- 80% cases pediatric with 75% <6 years old
- 20% adult with 2nd peak >65 years old
- Presentation: Fever, fatigue, MSK, hepatosplenomegaly, anemia, bleeding
- Treatment:
  - Ph-positive: Chemo with oral tyrosine kinase inhibitor
  - Ph-negative: Chemo. RTX if CD-20 positive.
  - Allogenic stem cell transplant
  - CAR-T cell therapy

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