8/7/26 Morning Report with @CPSolvers

"One life, so many dreams" ***Case Presenter****: Zakariyya Gardee (@*pouroverguy*)* ***Case Discussants****: Rabih(@rabihmgeha) and Reza (DxRxEdu)*

https://clinicalproblemsolving.com/present-a-case/

Scribing (Praveen/Lukas):

CC: 18 year old female referred with a massive pleural effusion

HPI:

Previously well. Reported a new cough.
No history of any constitutional symptoms or weight loss. Pleural effusion tapped in other hospital revealed reactive lymphocytes and neutrophils. Pleural fluid had high protein relative to serum protein.
Gene Expert revealed negative for tuberculosis

PMH:
Nil

Meds:
Nil

Fam Hx:
Nil

Social Hx:
Recently graduated School

Health-Related Behaviors:
Nil

Allergies: NKDA

Vitals: T: Afebrile **HR**: N **BP**: N **RR**:N **Sat**:N **BMI**:
Exam: Gen: Well looking despite symptoms. Initial examination revealed no abnormalities

Notable Labs & Imaging:

Hematology:
WBC: 0.64 Hgb: 5.1 Plt: 7

Chemistry:
Na:131 K:- Cl:- HCO3:- Ca:- Mg:- BUN: 89 Cr: 4.7

Vit B12 Normal, Folate : Normal, Coagulation Studies: Normal;
D-Dimer: Elevated LDH : >2500
HIV : Negative

P Smear : Leucocytosis and Left blast and leucoerythroblastic reaction noted. No schistocytes seen

BM Biopsy : Not enough specimen reported

Clinical Course: Renal functions improved with IV Fluids. Later examination revealed **extensive diffuse lymphadenopathy in cervical and axillary regions. Repeated WBC is 97K -> 150K -> 512K.**
Flow cytometry reported Negative B Lineage; Positive T lineage markers and small to intermediate cells that are CD45+. More than 50% Blasts.

Dx : T-Cell Acute Lymphoblastic Leukemia (T-ALL) complicated by Spontaneous Tumor Lysis syndrome

Problem Representation: 18 year old girl presents with a new cough and consequently a massive pleural effusion. Diffuse lymphadenopathy noted in cervical and axillary regions. Labs revealed pancytopenia and elevated D-Dimers and LDH.

Teaching Points (Mitch)

- **Types of Pleural Effusion:** Unilateral Pleural Effusion less likely transudative 2/2 systemic pressure issue
  - Transudative: No Hole (pressure issue)
  - Exudative: Small Hole (protein + albumin)
  - Hemorrhagic: Large Hole (RBCs)
  - Light's Criteria: Can misclassify transudative effusions as exudative
- **Diagnosing TB:**
  - Gold Standard: Culture (takes forever). AFB + staining (faster)
  - TB in the pleural space is usually not in the effusion, it is on the pleura causing effusions but likely not in the fluid.
- **Chronic disease leads to adaptive changes:** Hgb of 5.1 should cause symptoms acutely, likely a chronic process with adaptation to baseline
- **3 Main Problems:** Massive Effusion + Pancytopenia + Renal Insufficiency
  - Answer likely in the bone marrow (cause of pancytopenia -> effusion)
  - Silent inflammatory processes in marrow: Malignancy (lymphoma + leukemia), Granulomatous Infections (TB, fungal) , Substances (nutrients)
  - Peripheral smear could help show clues to invasive process
- **Leukoerythroblastic reaction: The bone marrow is AWAKE not ASLEEP**
  - Not being suppressed, but what is causing increased cell production?
- **Diffuse Lymphadenopathy:** Infection + Autoimmune + Malignancy
  - Elevated LDH = increased cell turnover -> prioritizing lymphoma