11/22/24 Morning Report with @CPSolvers

*"One life, so many dreams" **Case Presenter**: Anmolpreet Grewal (@anugrewal19) **Case Discussants**: Rabih (@rabihmgeha) and Reza (@DxRxEdu)*

CC: 40 YO M w/ **fever**, generalized **weakness** and reduced oral intake for **15 days**

HPI: Came in because experiencing **SOB at rest** prior to presentation. Fever is **low-grade** (37.7 C/100 F, **HIGHEST 38.7 C/101 F)**.

Recent **travel** to **North India** and **mosquito bites**. Fever responded to paracetamol but spiked again shortly after. Prior blood work revealed **thrombocytopenia**. Normal prior to recent travel.

No abdominal pain, burning during micturition, no cough, no night sweats, no rashes.

PMH:
none

Meds: None

Fam Hx:
Mother esophageal cancer (treated)

Soc Hx: recent travel to north India with mosquito bites. Lives in a village in **rural india.** Exposure to animals (works as a **farmer**)

Health-Related Behaviors: Drinks **one bottle of alcohol daily**. Doesn't smoke.

Allergies: NKA

Vitals: T: afebrile **HR:** 100 **BP:** 100/70 **RR:** 22
Exam: Gen: conscious, oriented to time place and person
HEENT: pupils normal bilaterally, no conjunctival icterus
CV: normal JVP, no murmurs, normal S1, S2, **Pulm, Abd, Neuro, Extremities/skin:** nl

Notable Labs & Imaging:
Hematology:
WBC: 12.5k → **16k** (diff: **lymphocytes 67%**, neutrophils 31%, mono 0.8%, eos 0.8%), Hbg: 15.7 (MCV 88.6), Plt: **28k** (trending down shortly after admission)
Chemistry:
Na:142 K:4.02 BUN: 48 Cr: 1.27 Phos: 2.66, RBS 76, UA nl,
Cholesterol: 162, triglycerides: 252
AST: 57, ALT: 39, Alk-P: 84, TBili normal, Total protein 6.7, Albumin 3.96, Amylase nl, Lipase nl, Procalcitonin: 0.25
Blood smear: normocytic rbc, reduced platelets, **myelocytes and metamyelocytes**
Negative serologies for: Dengue Lepto IgM, Scrub typhus, HIV, HEP B, HEP C, Influenza A/B, RSV, H1N1; Plasmodium falciparum: negative. Blood culture: negative
Bone marrow biopsy: predominantly normocytic normochromic RBCs, **ATYPICAL LYMPHOID CELLS AT 18%**, REDUCED PLATELETS, NEUTROPHILS 25%, LYMPHOCYTES 39%, LYMPHOID CELLS 28%. **Overall cellularity 95%. High NC ratio, chromatin and inconspicuous nucleoli.**
Flow cytometry: *HLADR positive, TDT positive, CD19 positive, CD7901A positive, CD22, CD10, and CD34 positive*. Suggestive of precursor B-cell lymphoblastic leukemia.
Imaging:
HRCT: elevated domes of diaphragm, basal atelectasis and minimal left pleural effusion, and mild splenomegaly.
US abdomen: liver enlarged, fatty liver w/ increased echogenicity, intrahepatic parenchyma normal and not dilated, spleen enlarged at 17.5 cm.
Echo: EF 60%
Dx: Precursor B-cell lymphoblastic leukemia

Problem Representation: A 40yoM from rural India with recent travel to North India and mosquito bites p/w subacute low-grade fever and SOB at rest prior to presentation. Labs notable for thrombopenia and lymphocytosis. PBS showing myelocytes and metamyelocytes, hypercellular bone marrow w/ atypical lymphoid cells, cytometry positive for CD19, CD7901A, CD22 consistent w/ precursor B-ALL. → *Final reflection: acute lymphoid leukemia infiltrating bone marrow and forcing myelocytes out of the marrow, i.e. myelocytes in PBS were not pathologic!*

Teaching Points (Zakariyya)

1) **Fever -** time course is key: Subacute/chronic causes raise likelihood of atypical bacteria, autoimmune diseases and malignancy
2) **Decreased appetite -** usually non-specific, can localize downwards to the GIT
3) **Fever of unknown origin**: Strict criteria a) history b) exam c) labs & microbiology d) radiology
4) **Isolated, Infectious Thrombocytopenia** - Exogenous causes > endogenous with some exceptions (sepsis, TSS & endovascular infection)
5) **Thrombocytopenia microbiology**: Tick-borne, Granulomatous, Parasites, Leptospirosis, Typhoid Fever, acute and chronic viral causes and fungal diseases
6) **Lymphocytosis**: *Acute causes*: Fake-out, Viral, Drugs. *Subacute-to-chronic*: Lymphoma, lymphoma, lymphoma
7) **Hemorrhagic infection** - clue is an initial erythrocytosis
8) **Treatment of suspected Infectious thrombocytopenia, vascular leak**: Fluids, consider Malaria Tx, Doxycyline and Ceftriaxone
9) **Peripheral premature cells -** usually indicate a bone marrow disorder. One infection: *Hantavirus*